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| (54) Title: 5' ESTs FOR SECRETED PROTEINS EXPRESSED IN BRAIN | | |
| (57) Abstract <p>The sequences of 5' ESTs derived from mRNAs encoding secreted proteins are disclosed. The 5' ESTs may be to obtain cDNAs and genomic DNAs corresponding to the 5' ESTs. The 5' ESTs may also be used in diagnostic, forensic, gene therapy, and chromosome mapping procedures. Upstream regulatory sequences may also be obtained using the 5' ESTs. The 5' ESTs may also be used to design expression vectors and secretion vectors.</p> | | |

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5' ESTs FOR SECRETED PROTEINS EXPRESSED IN BRAIN

Background of the Invention

The estimated 50,000-100,000 genes scattered along the human chromosomes offer tremendous promise for the understanding, diagnosis, and treatment of human diseases. In addition, probes capable of specifically hybridizing to loci distributed throughout the human genome find applications in the construction of high resolution chromosome maps and in the identification of individuals.

In the past, the characterization of even a single human gene was a painstaking process, requiring years of effort. Recent developments in the areas of cloning vectors, DNA sequencing, and computer technology have merged to greatly accelerate the rate at which human genes can be isolated, sequenced, mapped, and characterized. Cloning vectors such as yeast artificial chromosomes (YACs) and bacterial artificial chromosomes (BACs) are able to accept DNA inserts ranging from 300 to 1000 kilobases (kb) or 100-400 kb in length respectively, thereby facilitating the manipulation and ordering of DNA sequences distributed over great distances on the human chromosomes. Automated DNA sequencing machines permit the rapid sequencing of human genes. Bioinformatics software enables the comparison of nucleic acid and protein sequences, thereby assisting in the characterization of human gene products.

Currently, two different approaches are being pursued for identifying and characterizing the genes distributed along the human genome. In one approach, large fragments of genomic DNA are isolated, cloned, and sequenced. Potential open reading frames in these genomic sequences are identified using bioinformatics software. However, this approach entails sequencing large stretches of human DNA which do not encode proteins in order to find the protein encoding sequences scattered throughout the genome. In addition to requiring extensive sequencing, the bioinformatics software may mischaracterize the genomic sequences obtained. Thus, the software may produce false positives in which non-coding DNA is mischaracterized as coding DNA or false negatives in which coding DNA is mislabeled as non-coding DNA.

An alternative approach takes a more direct route to identifying and characterizing human genes. In this approach, complementary DNAs (cDNAs) are synthesized from isolated messenger RNAs (mRNAs) which encode human proteins. Using this approach,

sequencing is only performed on DNA which is derived from protein coding portions of the genome. Often, only short stretches of the cDNAs are sequenced to obtain sequences called expressed sequence tags (ESTs). The ESTs may then be used to isolate or purify extended cDNAs which include sequences adjacent to the EST sequences. The extended cDNAs may
5 contain all of the sequence of the EST which was used to obtain them or only a portion of the sequence of the EST which was used to obtain them. In addition, the extended cDNAs may contain the full coding sequence of the gene from which the EST was derived or, alternatively, the extended cDNAs may include portions of the coding sequence of the gene from which the EST was derived. It will be appreciated that there may be several extended
10 cDNAs which include the EST sequence as a result of alternate splicing or the activity of alternative promoters.

In the past, these short EST sequences were often obtained from oligo-dT primed cDNA libraries. Accordingly, they mainly corresponded to the 3' untranslated region of the mRNA. In part, the prevalence of EST sequences derived from the 3' end of the mRNA is a
15 result of the fact that typical techniques for obtaining cDNAs are not well suited for isolating cDNA sequences derived from the 5' ends of mRNAs. (Adams *et al.*, *Nature* 377:3-174, 1996; Hillier *et al.*, *Genome Res.* 6:807-828, 1996).

In addition, in those reported instances where longer cDNA sequences have been obtained, the reported sequences typically correspond to coding sequences and do not include
20 the full 5' untranslated region of the mRNA from which the cDNA is derived. Such incomplete sequences may not include the first exon of the mRNA, particularly in situations where the first exon is short. Furthermore, they may not include some exons, often short ones, which are located upstream of splicing sites. Thus, there is a need to obtain sequences derived from the 5' ends of mRNAs.

25 While many sequences derived from human chromosomes have practical applications, approaches based on the identification and characterization of those chromosomal sequences which encode a protein product are particularly relevant to diagnostic and therapeutic uses. Of the 50,000-100,000 protein coding genes, those genes encoding proteins which are secreted from the cell in which they are synthesized, as well as the secreted proteins
30 themselves, are particularly valuable as potential therapeutic agents. Such proteins are often

involved in cell to cell communication and may be responsible for producing a clinically relevant response in their target cells.

In fact, several secretory proteins, including tissue plasminogen activator, G-CSF, GM-CSF, erythropoietin, human growth hormone, insulin, interferon- α , interferon- β , interferon- γ , and interleukin-2, are currently in clinical use. These proteins are used to treat a wide range of conditions, including acute myocardial infarction, acute ischemic stroke, anemia, diabetes, growth hormone deficiency, hepatitis, kidney carcinoma, chemotherapy induced neutropenia and multiple sclerosis. For these reasons, extended cDNAs encoding secreted proteins or portions thereof represent a particularly valuable source of therapeutic agents. Thus, there is a need for the identification and characterization of secreted proteins and the nucleic acids encoding them.

In addition to being therapeutically useful themselves, secretory proteins include short peptides, called signal peptides, at their amino termini which direct their secretion. These signal peptides are encoded by the signal sequences located at the 5' ends of the coding sequences of genes encoding secreted proteins. Because these signal peptides will direct the extracellular secretion of any protein to which they are operably linked, the signal sequences may be exploited to direct the efficient secretion of any protein by operably linking the signal sequences to a gene encoding the protein for which secretion is desired. In addition, portions of signal sequences may also be used to direct the intracellular import of a peptide or protein of interest. This may prove beneficial in gene therapy strategies in which it is desired to deliver a particular gene product to cells other than the cell in which it is produced. Signal sequences encoding signal peptides also find application in simplifying protein purification techniques. In such applications, the extracellular secretion of the desired protein greatly facilitates purification by reducing the number of undesired proteins from which the desired protein must be selected. Thus, there exists a need to identify and characterize the 5' portions of the genes for secretory proteins which encode signal peptides.

Public information on the number of human genes for which the promoters and upstream regulatory regions have been identified and characterized is quite limited. In part, this may be due to the difficulty of isolating such regulatory sequences. Upstream regulatory sequences such as transcription factor binding sites are typically too short to be utilized as probes for isolating promoters from human genomic libraries. Recently, some approaches

have been developed to isolate human promoters. One of them consists of making a CpG island library (Cross, *et al.*, *Nature Genetics* 6: 236-244, 1994). The second consists of isolating human genomic DNA sequences containing SpeI binding sites by the use of SpeI binding protein. (Mortlock *et al.*, *Genome Res.* 6:327-335, 1996). Both of these approaches
5 have their limits due to a lack of specificity or of comprehensiveness.

The present 5' ESTs may be used to efficiently identify and isolate upstream regulatory regions which control the location, developmental stage, rate, and quantity of protein synthesis, as well as the stability of the mRNA. (Theil, *BioFactors* 4:87-93, 1993). Once identified and characterized, these regulatory regions may be utilized in gene therapy or protein purification schemes to obtain the desired amount and locations of protein synthesis
10 or to inhibit, reduce, or prevent the synthesis of undesirable gene products.

In addition, ESTs containing the 5' ends of secretory protein genes may include sequences useful as probes for chromosome mapping and the identification of individuals. Thus, there is a need to identify and characterize the sequences upstream of the 5' coding
15 sequences of genes encoding secretory proteins.

Summary of the Invention

The present invention relates to purified, isolated, or recombinant ESTs which include sequences derived from the authentic 5' ends of their corresponding mRNAs. The term
20 "corresponding mRNA" refers to the mRNA which was the template for the cDNA synthesis which produced the 5' EST. These sequences will be referred to hereinafter as "5' ESTs." As used herein, the term "purified" does not require absolute purity; rather, it is intended as a relative definition. Individual 5' EST clones isolated from a cDNA library have been conventionally purified to electrophoretic homogeneity. The sequences obtained from these
25 clones could not be obtained directly either from the library or from total human DNA. The cDNA clones are not naturally occurring as such, but rather are obtained via manipulation of a partially purified naturally occurring substance (messenger RNA). The conversion of mRNA into a cDNA library involves the creation of a synthetic substance (cDNA) and pure individual cDNA clones can be isolated from the synthetic library by clonal selection. Thus,
30 creating a cDNA library from messenger RNA and subsequently isolating individual clones from that library results in an approximately 10^4 - 10^6 fold purification of the native message.

Purification of starting material or natural material to at least one order of magnitude, preferably two or three orders, and more preferably four or five orders of magnitude is expressly contemplated.

5 As used herein, the term "isolated" requires that the material be removed from its original environment (e.g., the natural environment if it is naturally occurring). For example, a naturally-occurring polynucleotide present in a living animal is not isolated, but the same polynucleotide, separated from some or all of the coexisting materials in the natural system, is isolated.

10 As used herein, the term "recombinant" means that the 5' EST is adjacent to "backbone" nucleic acid to which it is not adjacent in its natural environment. Additionally, to be "enriched" the 5' ESTs will represent 5% or more of the number of nucleic acid inserts in a population of nucleic acid backbone molecules. Backbone molecules according to the present invention include nucleic acids such as expression vectors, self-replicating nucleic acids, viruses, integrating nucleic acids, and other vectors or nucleic acids used to maintain or
15 manipulate a nucleic acid insert of interest. Preferably, the enriched 5' ESTs represent 15% or more of the number of nucleic acid inserts in the population of recombinant backbone molecules. More preferably, the enriched 5' ESTs represent 50% or more of the number of nucleic acid inserts in the population of recombinant backbone molecules. In a highly preferred embodiment, the enriched 5' ESTs represent 90% or more of the number of nucleic
20 acid inserts in the population of recombinant backbone molecules.

"Stringent", moderate," and "low" hybridization conditions are as defined in Example 29.

Unless otherwise indicated, a "complementary" sequence is fully complementary.

25 Thus, 5' ESTs in cDNA libraries in which one or more 5' ESTs make up 5% or more of the number of nucleic acid inserts in the backbone molecules are "enriched recombinant 5' ESTs" as defined herein. Likewise, 5' ESTs in a population of plasmids in which one or more 5' EST of the present invention have been inserted such that they represent 5% or more of the number of inserts in the plasmid backbone are "enriched recombinant 5' ESTs" as defined herein. However, 5' ESTs in cDNA libraries in which 5' ESTs constitute less than 5% of the
30 number of nucleic acid inserts in the population of backbone molecules, such as libraries in

which backbone molecules having a 5' EST insert are extremely rare, are not "enriched recombinant 5' ESTs."

In particular, the present invention relates to 5' ESTs which are derived from genes encoding secreted proteins. As used herein, a "secreted" protein is one which, when
5 expressed in a suitable host cell, is transported across or through a membrane, including transport as a result of signal peptides in its amino acid sequence. "Secreted" proteins include without limitation proteins secreted wholly (e.g. soluble proteins), or partially (e.g. receptors) from the cell in which they are expressed. "Secreted" proteins also include without limitation proteins which are transported across the membrane of the endoplasmic reticulum.

10 Such 5' ESTs include nucleic acid sequences, called signal sequences, which encode signal peptides which direct the extracellular secretion of the proteins encoded by the genes from which the 5' ESTs are derived. Generally, the signal peptides are located at the amino termini of secreted proteins.

Secreted proteins are translated by ribosomes associated with the "rough"
15 endoplasmic reticulum. Generally, secreted proteins are co-translationally transferred to the membrane of the endoplasmic reticulum. Association of the ribosome with the endoplasmic reticulum during translation of secreted proteins is mediated by the signal peptide. The signal peptide is typically cleaved following its co-translational entry into the endoplasmic reticulum. After delivery to the endoplasmic reticulum, secreted proteins may proceed through the
20 Golgi apparatus. In the Golgi apparatus, the proteins may undergo post-translational modification before entering secretory vesicles which transport them across the cell membrane.

The 5' ESTs of the present invention have several important applications. For example, they may be used to obtain and express cDNA clones which include the full protein
25 coding sequences of the corresponding gene products, including the authentic translation start sites derived from the 5' ends of the coding sequences of the mRNAs from which the 5' ESTs are derived. These cDNAs will be referred to hereinafter as "full length cDNAs." These cDNAs may also include DNA derived from mRNA sequences upstream of the translation start site. The full length cDNA sequences may be used to express the proteins
30 corresponding to the 5' ESTs. As discussed above, secreted proteins are therapeutically important. Thus, the proteins expressed from the cDNAs may be useful in treating or

controlling a variety of human conditions. The 5' EST refers to the corresponding genomic DNA. The term "corresponding genomic DNA which encodes the mRNA from which the 5' EST is obtained" refers to the genomic DNA which encodes the mRNA from which the 5' EST is obtained.

Alternatively, the 5' ESTs may be used to obtain and express encoding portions of the secreted protein. The portions may comprise the signal peptides of the secreted proteins or the mature proteins generated when the signal peptide is cleaved of the secreted proteins. The portions may also comprise polypeptides having at least 10 consecutive amino acids encoded by the extended cDNAs or full length cDNAs. Alternatively, the portions may comprise at least 15 consecutive amino acids encoded by the extended cDNAs or full length cDNAs. In some embodiments, the portions may comprise at least 25 consecutive amino acids encoded by the extended cDNAs or full length cDNAs. In other embodiments, the portions may comprise at least 40 amino acids encoded by the extended cDNAs or full length cDNAs.

Antibodies which specifically recognize the entire secreted proteins encoded by the extended cDNAs, full length cDNAs, or fragments thereof having at least 10 consecutive amino acids, at least 15 consecutive amino acids, at least 25 consecutive amino acids, or at least 40 consecutive amino acids may also be obtained as described below. Antibodies which specifically recognize the mature protein generated when the signal peptide is cleaved may also be obtained as described below. Similarly, antibodies which specifically recognize the signal peptides encoded by the extended cDNAs or full length cDNAs may also be obtained.

In some embodiments, the extended cDNAs obtained using the 5' ESTs include the signal sequence. In other embodiments, the extended cDNAs obtained using the 5' ESTs may include the full coding sequence for the mature protein (*i.e.* the protein generated when the signal polypeptide is cleaved off). In addition, the extended cDNAs obtained using the 5' ESTs may include regulatory regions upstream of the translation start site or downstream of the stop codon which control the amount, location, or developmental stage of gene expression.

As discussed above, secreted proteins are therapeutically important. Thus, the proteins expressed from the extended cDNAs or full length cDNAs obtained using the 5' ESTs may be useful in treating or controlling a variety of human conditions.

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ESTs (or cDNAs or genomic DNAs obtained therefrom) may be used in procedures to identify individuals or in diagnostic procedures to identify individuals with genetic diseases resulting from abnormal expression of the genes corresponding to the ESTs. In addition, the present invention is useful for constructing a high resolution map of the human chromosomes.

The present invention also relates to secretion vectors capable of directing the secretion of a protein of interest. Such vectors may be used in gene therapy strategies in which it is desired to produce a gene product in one cell which is to be delivered to another location in the body. Secretion vectors may also facilitate the purification of desired proteins.

10 The present invention also relates to expression vectors capable of directing the expression of an inserted gene in a desired spatial or temporal manner or at a desired level. Such vectors may include sequences upstream of the 5' ESTs, such as promoters or upstream regulatory sequences.

15 Finally, the present invention may also be used for gene therapy to control or treat genetic diseases. Signal peptides may also be fused to heterologous proteins to direct their extracellular secretion.

20 Bacterial clones containing Bluescript plasmids having inserts containing the 5' ESTs of the present invention (SEQ ID NOs: 38-270 are presently stored at 80°C in 4% (v/v) glycerol in the inventor's laboratories under the designations listed next to the SEQ ID NOs in Table II). The inserts may be recovered from the deposited materials by growing the appropriate clones on a suitable medium. The Bluescript DNA can then be isolated using plasmid isolation procedures familiar to those skilled in the art such as alkaline lysis minipreps or large scale alkaline lysis plasmid isolation procedures. If desired the plasmid DNA may be further enriched by centrifugation on a cesium chloride gradient, size exclusion chromatography, or anion exchange chromatography. The plasmid DNA obtained using these procedures may then be manipulated using standard cloning techniques familiar to those skilled in the art. 25 Alternatively, a PCR can be done with primers designed at both ends of the EST insertion. The PCR product which corresponds to the 5' EST can then be manipulated using standard cloning techniques familiar to those skilled in the art.

One aspect of the present invention is a purified or isolated nucleic acid having the sequence of one of SEQ ID NOs: 38-270 or having a sequence complementary thereto. In one embodiment, the nucleic acid is recombinant.

5 Another aspect of the present invention is a purified or isolated nucleic acid comprising at least 10 consecutive bases of the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary thereto.

Yet another aspect of the present invention is a purified or isolated nucleic acid comprising at least 15 consecutive bases of one of the sequences of SEQ ID NOs: 38-270 or one of the sequences complementary thereto. In one embodiment, the nucleic acid is
10 recombinant.

A further aspect of the present invention is a purified or isolated nucleic acid of at least 15 bases capable of hybridizing under stringent conditions to the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary to the sequences of SEQ ID NOs: 38-270. In one embodiment, the nucleic acid is recombinant.

15 Another aspect of the present invention is a purified or isolated nucleic acid encoding a human gene product, said human gene product having a sequence partially encoded by one of the sequences of SEQ ID NO: 38-270.

Still another aspect of the present invention is a method of making a cDNA encoding a human secretory protein, said human secretory protein being partially encoded by one of
20 SEQ ID NOs 38-270, comprising the steps of contacting a collection of mRNA molecules from human cells with a primer comprising at least 15 consecutive nucleotides of a sequence complementary to one of SEQ ID NOs: 38-270; hybridizing said primer to an mRNA in said collection that encodes said protein; reverse transcribing said hybridized primer to make a first
25 cDNA strand from said mRNA; making a second cDNA strand complementary to said first cDNA strand; and isolating the resulting cDNA encoding said protein comprising said first cDNA strand and said second cDNA strand.

Another aspect of the invention is an isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being
30 obtainable by the method described in the preceding paragraph. In one embodiment, the

cDNA comprises the full protein coding sequence of said protein which sequence is partially included in one of the sequences of SEQ ID NOs: 38-270.

Another aspect of the present invention is a method of making a cDNA encoding a human secretory protein that is partially encoded by one of SEQ ID NOs 38-270, comprising the steps of obtaining a cDNA comprising one of the sequences of SEQ ID NOs: 38-270; contacting said cDNA with a detectable probe comprising at least 15 consecutive nucleotides of said sequence of SEQ ID NO: 38-270 or a sequence complementary thereto under conditions which permit said probe to hybridize to said cDNA; identifying a cDNA which hybridizes to said detectable probe; and isolating said cDNA which hybridizes to said probe.

Another aspect of the present invention is an isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method described in the preceding paragraph. In one embodiment, the cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

Another aspect of the present invention is a method of making a cDNA comprising one of the sequence of SEQ ID NOs: 38-270, comprising the steps of contacting a collection of mRNA molecules from human cells with a first primer capable of hybridizing to the polyA tail of said mRNA; hybridizing said first primer to said polyA tail; reverse transcribing said mRNA to make a first cDNA strand; making a second cDNA strand complementary to said first cDNA strand using at least one primer comprising at least 15 nucleotides of one of the sequences of SEQ ID NOs 38-270; and isolating the resulting cDNA comprising said first cDNA strand and said second cDNA strand.

Another aspect of the present invention is an isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method described in the preceding paragraph. In one embodiment, the cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

In one embodiment of the method described in the two paragraphs above, the second cDNA strand is made by contacting said first cDNA strand with a first pair of primers, said

first pair of primers comprising a second primer comprising at least 15 consecutive nucleotides of one of the sequences of SEQ ID NOs 38-270 and a third primer having a sequence therein which is included within the sequence of said first primer; performing a first polymerase chain reaction with said first pair of nested primers to generate a first PCR product; contacting said first PCR product with a second pair of primers, said second pair of primers comprising a fourth primer, said fourth primer comprising at least 15 consecutive nucleotides of said sequence of one of SEQ ID NOs: 38-270, and a fifth primer, said fourth and fifth primers being capable of hybridizing to sequences within said first PCR product; and performing a second polymerase chain reaction, thereby generating a second PCR product.

One aspect of the present invention is an isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270, or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of the preceding paragraph. In one embodiment, the cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

Another aspect of the present invention is the method described four paragraphs above in which the second cDNA strand is made by contacting said first cDNA strand with a second primer comprising at least 15 consecutive nucleotides of the sequences of SEQ ID NOs: 38-270; hybridizing said second primer to said first strand cDNA; and extending said hybridized second primer to generate said second cDNA strand.

Another aspect of the present invention is an isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein partially encoded by one of SEQ ID NOs 38-270 or comprising a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method described in the preceding paragraph. In one embodiment, the cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

Another aspect of the present invention is a method of making a protein comprising one of the sequences of SEQ ID NOs: 271-503, comprising the steps of obtaining a cDNA encoding the full protein sequence partially included in one of the sequences of sequence of SEQ ID NOs: 38-270; inserting said cDNA in an expression vector such that said cDNA is

operably linked to a promoter; introducing said expression vector into a host cell whereby said host cell produces the protein encoded by said cDNA; and isolating said protein.

Another aspect of the present invention is an isolated protein obtainable by the method described in the preceding paragraph.

5 Another aspect of the present invention is a method of obtaining a promoter DNA comprising the steps of obtaining DNAs located upstream of the nucleic acids of SEQ ID NOs: 38-270 or the sequences complementary thereto; screening said upstream DNAs to identify a promoter capable of directing transcription initiation; and isolating said DNA comprising said identified promoter. In one embodiment, the obtaining step comprises
10 chromosome walking from said nucleic acids of SEQ ID NOs: 38-270 or sequences complementary thereto. In another embodiment, the screening step comprises inserting said upstream sequences into a promoter reporter vector. In another embodiment, the screening step comprises identifying motifs in said upstream DNAs which are transcription factor binding sites or transcription start sites.

15 Another aspect of the present invention is an isolated promoter obtainable by the method described above.

Another aspect of the present invention is an isolated or purified protein comprising one of the sequences of SEQ ID NOs: 271-503.

20 Another aspect of the present invention is the inclusion of at least one of the sequences of SEQ ID NOs: 38-270, or one of the sequences complementary to the sequences of SEQ ID NOs: 38-270, or a fragment thereof of at least 15 consecutive nucleotides in an array of discrete ESTs or fragments thereof of at least 15 nucleotides in length. In one embodiment, the array includes at least two of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of
25 at least 15 consecutive nucleotides. In another embodiment, the array includes at least five of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of at least 15 consecutive nucleotides.

Another aspect of the present invention is a promoter having a sequence selected from the group consisting of SEQ ID NOs: 31, 34, and 37.

Brief Description of the Drawings

Figure 1 is a summary of a procedure for obtaining cDNAs which have been selected to include the 5' ends of the mRNAs from which they derived.

Figure 2 shows the distribution of Von Heijne scores for 5' ESTs in each of the categories described herein and the probability that these 5' ESTs encode a signal peptide.

Figure 3 summarizes a general method used to clone and sequence extended cDNAs containing sequences adjacent to 5' ESTs.

Figure 4 (description of promoters structure isolated from SignalTag 5' ESTs) provides a schematic description of promoters isolated and the way they are assembled with the corresponding 5' tags.

Detailed Description of the Preferred Embodiment

Table IV is an analysis of the 43 amino acids located at the N terminus of all human SwissProt proteins to determine the frequency of false positives and false negatives using the techniques for signal peptide identification described herein.

Table V shows the distribution of 5' ESTs in each category described herein and the number of 5' ESTs in each category having a given minimum Von Heijne's score.

Table VI shows the distribution of 5' ESTs in each category described herein with respect to the tissue from which the 5' ESTs of the corresponding mRNA were obtained.

Table VII describes the transcription factor binding sites present in each of these promoters.

I. General Methods for Obtaining 5' ESTs derived from mRNAs with intact 5' ends

In order to obtain the 5' ESTs of the present invention, mRNAs with intact 5' ends must be obtained. Currently, there are two approaches for obtaining such mRNAs with intact 5' ends as described below: either chemical (1) or enzymatic (2).

1. Chemical Methods for Obtaining mRNAs having Intact 5' Ends

One of these approaches is a chemical modification method involving derivatization of the 5' ends of the mRNAs and selection of the derivatized mRNAs. The 5' ends of eukaryotic mRNAs possess a structure referred to as a "cap" which comprises a guanosine

5 methylated at the 7 position. The cap is joined to the first transcribed base of the mRNA by a 5', 5'-triphosphate bond. In some instances, the 5' guanosine is methylated in both the 2 and 7 positions. Rarely, the 5' guanosine is trimethylated at the 2, 7 and 7 positions. In the chemical method for obtaining mRNAs having intact 5' ends, the 5' cap is specifically derivatized and coupled to a reactive group on an immobilizing substrate. This specific derivatization is based on the fact that only the ribose linked to the methylated guanosine at the 5' end of the mRNA and the ribose linked to the base at the 3' terminus of the mRNA, possess 2', 3'-cis diols.

10 Optionally, the 2', 3'-cis diol of the 3' terminal ribose may be chemically modified, substituted, converted, or eliminated, leaving only the ribose linked to the methylated guanosine at the 5' end of the mRNA with a 2', 3'-cis diol. A variety of techniques are available for eliminating the 2', 3'-cis diol on the 3' terminal ribose. For example, controlled alkaline hydrolysis may be used to generate mRNA fragments in which the 3' terminal ribose is a 3'-phosphate, 2'-phosphate or (2', 3')-cyclophosphate. Thereafter, the fragment which includes the original 3' ribose may be eliminated from the mixture through chromatography on an oligodT column. Alternatively, a base which lacks the 2', 3'-cis diol may be added to the 3' end of the mRNA using an RNA ligase such as T4 RNA ligase. Example 1 below describes a method for ligation of a nucleoside diphosphate to the 3' end of messenger RNA.

20 EXAMPLE 1

Ligation of the Nucleoside Diphosphate pCp to the 3' End of mRNA.

One μg of RNA was incubated in a final reaction medium of 10 μl in the presence of 5 U of T₄ phage RNA ligase in the buffer provided by the manufacturer (Gibco - BRL), 40 U of the RNase inhibitor RNasin (Promega) and, 2 μl of ^{32}pCp (Amersham #PB 25 10208). The incubation was performed at 37°C for 2 hours or overnight at 7-8°C.

Following modification or elimination of the 2', 3'-cis diol at the 3' ribose, the 2', 3'-cis diol present at the 5' end of the mRNA may be oxidized using reagents such as NaBH₄, NaBH₃CN, or sodium periodate, thereby converting the 2', 3'-cis diol to a dialdehyde. Example 2 describes the oxidation of the 2', 3'-cis diol at the 5' end of the mRNA with 30 sodium periodate.

EXAMPLE 2

Oxidation of 2', 3'-cis diol at the 5' End of the mRNA with Sodium Periodate

0.1 OD unit of either a capped oligoribonucleotide of 47 nucleotides (including the cap) or an uncapped oligoribonucleotide of 46 nucleotides were treated as follows. The
5 oligoribonucleotides were produced by *in vitro* transcription using the transcription kit "AmpliScribe T7" (Epicentre Technologies). As indicated below, the DNA template for the RNA transcript contained a single cytosine. To synthesize the uncapped RNA, all four NTPs were included in the *in vitro* transcription reaction. To obtain the capped RNA, GTP was
10 replaced by an analogue of the cap, m7G(5')ppp(5')G. This compound, recognized by the polymerase, was incorporated into the 5' end of the nascent transcript during the initiation of transcription but was not incorporated during the extension step. Consequently, the resulting RNA contained a cap at its 5' end. The sequences of the oligoribonucleotides produced by the *in vitro* transcription reaction were:

+Cap:
15 5'm7GpppGCAUCCUACUCCCAUCCAAUUCCACCCUAACUCCUCCCAUCUCCAC-
3' (SEQ ID NO:1)

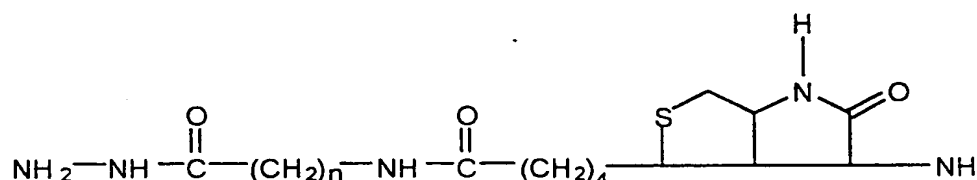
-Cap:
5'-pppGCAUCCUACUCCCAUCCAAUUCCACCCUAACUCCUCCCAUCUCCAC-3'
(SEQ ID NO:2)

20 The oligoribonucleotides were dissolved in 9 µl of acetate buffer (0.1 M sodium acetate, pH 5.2) and 3 µl of freshly prepared 0.1 M sodium periodate solution. The mixture was incubated for 1 hour in the dark at 4°C or room temperature. Thereafter, the reaction was stopped by adding 4 µl of 10% ethylene glycol. The product was ethanol precipitated, resuspended in at least 10 µl of water or appropriate buffer and dialyzed against water.

25 The resulting aldehyde groups may then be coupled to molecules having a reactive amine group, such as hydrazine, carbazide, thiocarbazide or semicarbazide groups, in order to facilitate enrichment of the 5' ends of the mRNAs. Molecules having reactive amine groups which are suitable for use in selecting mRNAs having intact 5' ends include avidin, proteins, antibodies, vitamins, ligands capable of specifically binding to receptor molecules, or
30 oligonucleotides. Example 3 below describes the coupling of the resulting dialdehyde to biotin.

EXAMPLE 3Coupling of the Dialdehyde at the 5' End of Transcripts with Biotin

The oxidation product obtained in Example 2 was dissolved in 50 μ l of sodium acetate at a pH between 5 and 5.2 and 50 μ l of freshly prepared 0.02 M solution of biotin hydrazide in a methoxyethanol/water mixture (1:1) of formula:



In the compound used in these experiments, $n=5$. However, it will be appreciated that other commercially available hydrazides may also be used, such as molecules of the above formula in which n varies from 0 to 5. The mixture was then incubated for 2 hours at 37°C, precipitated with ethanol and dialyzed against distilled water. Example 4 demonstrates the specificity of the biotinylation reaction.

EXAMPLE 4Specificity of Biotinylation of Capped Transcripts

The specificity of the biotinylation for capped mRNAs was evaluated by gel electrophoresis of the following samples:

Sample 1. The 46 nucleotide uncapped *in vitro* transcript prepared as in Example 2 and labeled with ^{32}pCp as described in Example 1.

Sample 2. The 46 nucleotide uncapped *in vitro* transcript prepared as in Example 2, labeled with ^{32}pCp as described in Example 1, treated with the oxidation reaction of Example 2, and subjected to the biotinylation conditions of Example 3.

Sample 3. The 47 nucleotide capped *in vitro* transcript prepared as in Example 2 and labeled with ^{32}pCp as described in Example 1.

Sample 4. The 47 nucleotide capped *in vitro* transcript prepared as in Example 2, labeled with 32 pCp as described in Example 1, treated with the oxidation reaction of Example 2, and subjected to the biotinylation conditions of Example 3.

5 Samples 1 and 2 had identical migration rates, demonstrating that the uncapped RNAs were not oxidized and biotinylated. Sample 3 migrated more slowly than Samples 1 and 2, while Sample 4 exhibited the slowest migration. The difference in migration of the RNAs in Samples 3 and 4 demonstrates that the capped RNAs were specifically biotinylated.

10 In some cases, mRNAs having intact 5' ends may be enriched by binding the molecule containing a reactive amine group to a suitable solid phase substrate such as the inside of the vessel containing the mRNAs, magnetic beads, chromatography matrices, or nylon or nitrocellulose membranes. For example, where the molecule having a reactive amine group is biotin, the solid phase substrate may be coupled to avidin or streptavidin. Alternatively, where the molecule having the reactive amine group is an antibody or receptor ligand, the solid phase substrate may be coupled to the cognate antigen or receptor. Finally, where the
15 molecule having a reactive amine group comprises an oligonucleotide, the solid phase substrate may comprise a complementary oligonucleotide.

The mRNAs having intact 5' ends may be released from the solid phase following the enrichment procedure. For example, where the dialdehyde is coupled to biotin hydrazide and the solid phase comprises streptavidin, the mRNAs may be released from the solid phase by
20 simply heating to 95 degrees Celsius in 2% SDS. In some methods, the molecule having a reactive amine group may also be cleaved from the mRNAs having intact 5' ends following enrichment. Example 5 describes the capture of biotinylated mRNAs with streptavidin coated beads and the release of the biotinylated mRNAs from the beads following enrichment.

25

EXAMPLE 5

Capture and Release of Biotinylated mRNAs Using Streptavidin Coated Beads

The streptavidin coated magnetic beads were prepared according to the manufacturer's instructions (CPG Inc., USA). The biotinylated mRNAs were added to a hybridization buffer (1.5 M NaCl, pH 5 - 6). After incubating for 30 minutes, the unbound
30 and nonbiotinylated material was removed. The beads were then washed several times in

water with 1% SDS. The beads thus obtained were incubated for 15 minutes at 95°C in water containing 2% SDS.

Example 6 demonstrates the efficiency with which biotinylated mRNAs were recovered from the streptavidin coated beads.

5

EXAMPLE 6

Efficiency of Recovery of Biotinylated mRNAs

The efficiency of the recovery procedure was evaluated as follows. Capped RNAs were labeled with ^{32}pCp , oxidized, biotinylated and bound to streptavidin coated beads as described above. Subsequently, the bound RNAs were incubated for 5, 15 or 30 minutes at 95°C in the presence of 2% SDS.

10

The products of the reaction were analyzed by electrophoresis on 12% polyacrylamide gels under denaturing conditions (7 M urea). The gels were subjected to autoradiography. During this manipulation, the hydrazone bonds were not reduced.

15

Increasing amounts of nucleic acids were recovered as incubation times in 2% SDS increased, demonstrating that biotinylated mRNAs were efficiently recovered.

In an alternative method for obtaining mRNAs having intact 5' ends, an oligonucleotide which has been derivatized to contain a reactive amine group is specifically coupled to mRNAs having an intact cap. Preferably, the 3' end of the mRNA is blocked prior to the step in which the aldehyde groups are joined to the derivatized oligonucleotide, as described above, so as to prevent the derivatized oligonucleotide from being joined to the 3' end of the mRNA. For example, pCp may be attached to the 3' end of the mRNA using T4 RNA ligase as described in example 1. However, as discussed above, blocking the 3' end of the mRNA is an optional step. Derivatized oligonucleotides may be prepared as described in Example 7.

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EXAMPLE 7

Derivatization of Oligonucleotides

An oligonucleotide phosphorylated at its 3' end was converted to a 3' hydrazide in 3' by treatment with an aqueous solution of hydrazine or of dihydrazide of the formula $\text{H}_2\text{N(R1)NH}_2$ at about 1 to 3 M, and at pH 4.5 at a temperature of 8°C overnight. This

30

incubation was performed in the presence of a carbodiimide type agent soluble in water such as 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide at a final concentration of 0.3 M.

The derivatized oligonucleotide was then separated from the other agents and products using a standard technique for isolating oligonucleotides.

5 As discussed above, the mRNAs to be enriched may be treated to eliminate the 3' OH groups which may be present thereon. This may be accomplished by enzymatic ligation of sequences lacking a 3' OH, such as pCp, as described in Example 1. Alternatively, the 3' OH groups may be eliminated by alkaline hydrolysis as described in Example 8 below.

10

EXAMPLE 8

Elimination of 3' OH Groups of mRNA Using Alkaline Hydrolysis

In a total volume of 100 μ l of 0.1 N sodium hydroxide, 1.5 μ g mRNA is incubated for 40 to 60 minutes at 4°C. The solution is neutralized with acetic acid and precipitated with ethanol.

15

Following the optional elimination of the 3' OH groups, the diol groups at the 5' ends of the mRNAs are oxidized as described below in Example 9.

EXAMPLE 9

Oxidation of Diols of mRNA

20

Up to 1 OD unit of RNA was dissolved in 9 μ l of buffer (0.1 M sodium acetate, pH 6-7) or water and 3 μ l of freshly prepared 0.1 M sodium periodate solution. The reaction was incubated for 1 h in the dark at 4°C or room temperature. Following the incubation, the reaction was stopped by adding 4 μ l of 10% ethylene glycol. Thereafter the mixture was incubated at room temperature for 15 minutes. After ethanol precipitation, the product was resuspended in at least 10 μ l of water or appropriate buffer and dialyzed against water.

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Following oxidation of the diol groups at the 5' ends of the mRNAs, the derivatized oligonucleotide was joined to the resulting aldehydes as described in Example 10.

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EXAMPLE 10

Ligature of Aldehydes of mRNA to Derivatized Oligonucleotides

The oxidized mRNA was dissolved in an acidic medium such as 50 μ l of sodium acetate pH 4-6. Fifty μ l of a solution of the derivatized oligonucleotide were added in order to obtain an mRNA:derivatized oligonucleotide ratio of 1:20. The mixture was reduced with a borohydride and incubated for 2 h at 37°C or overnight (14 h) at 10°C. The mixture was then ethanol precipitated, resuspended in 10 μ l or more of water or appropriate buffer and dialyzed against distilled water. If desired, the resulting product may be analyzed using acrylamide gel electrophoresis, HPLC analysis, or other conventional techniques.

Following the attachment of the derivatized oligonucleotide to the mRNAs, a reverse transcription reaction may be performed as described in Example 11 below.

EXAMPLE 11

Reverse Transcription of mRNAs Ligatured to Derivatized Oligonucleotides

An oligodeoxyribonucleotide was derivatized as follows. Three OD units of an oligodeoxyribonucleotide of sequence 5'ATCAAGAATTCGCACGAGACCATTAA3' (SEQ ID NO:3) having 5'-OH and 3'-P ends were dissolved in 70 μ l of a 1.5 M hydroxybenzotriazole solution, pH 5.3, prepared in dimethylformamide/water (75:25) containing 2 μ g of 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide. The mixture was incubated for 2 h 30 min at 22°C and then precipitated twice in LiClO₄/acetone. The pellet was resuspended in 200 μ l of 0.25 M hydrazine and incubated at 8°C from 3 to 14 h. Following the hydrazine reaction, the mixture was precipitated twice in LiClO₄/acetone.

The messenger RNAs to be reverse transcribed were extracted from blocks of placenta having sides of 2 cm which had been stored at -80°C. The total RNA was extracted using conventional acidic phenol techniques. Oligo-dT chromatography was used to purify the mRNAs. The integrity of the mRNAs was checked by Northern-blotting.

The diol groups on 7 μ g of the placental mRNAs were oxidized as described above in Example 9. The derivatized oligonucleotide was joined to the mRNAs as described in Example 10 above except that the precipitation step was replaced by an exclusion chromatography step to remove derivatized oligodeoxyribonucleotides which were not joined to mRNAs. Exclusion chromatography was performed as follows:

Ten ml of Ultrogel AcA34 (BioSeptra#230151) gel, a mix of agarose and acrylamide, were equilibrated in 50 ml of a solution of 10 mM Tris pH 8.0, 300 mM NaCl, 1 mM EDTA, and 0.05% SDS. The mixture was allowed to sediment. The supernatant was eliminated and the gel was resuspended in 50 ml of buffer. This procedure was repeated 2 or 3 times.

5 A glass bead (diameter 3 mm) was introduced into a 2 ml disposable pipette (length 25 cm). The pipette was filled with the gel suspension until the height of the gel stabilized at 1 cm from the top of the pipette. The column was then equilibrated with 20 ml of equilibration buffer (10 mM Tris HCl pH 7.4, 20 mM NaCl).

10 Ten µl of the mRNA which had reacted with the derivatized oligonucleotide were mixed in 39 µl of 10 mM urea and 2 µl of blue-glycerol buffer, which had been prepared by dissolving 5 mg of bromophenol blue in 60% glycerol (v/v), and passing the mixture through a 0.45 µm diameter filter.

15 The column was then loaded with the mRNAs coupled to the oligonucleotide. As soon as the sample had penetrated, equilibration buffer was added. Hundred µl fractions were then collected. Derivatized oligonucleotide which had not been attached to mRNA appeared in fraction 16 and later fractions. Thus, fractions 3 to 15 were combined and precipitated with ethanol.

20 To determine whether the derivatized oligonucleotide was actually linked to mRNA, one tenth of the combined fractions were spotted twice on a nylon membrane and hybridized to a radioactive probe using conventional techniques. The ³²P labeled probe used in these hybridizations was an oligodeoxyribonucleotide of sequence 5'TAATGGTCTCGTGCGAATTCTTGAT3' (SEQ ID NO:4) anticomplementary to the derivatized oligonucleotide. A signal observed after autoradiography, indicated that the derivatized oligonucleotide had been truly joined to the mRNA.

25 The remaining nine tenth of the mRNAs which had reacted with the derivatized oligonucleotide was reverse transcribed as follows. A reverse transcription reaction was carried out with reverse transcriptase following the manufacturer's instructions and 50 pmol of nonamers with random sequence as primers.

30 To ensure that reverse transcription had been carried out through the cap structure, two types of experiments were performed.

In the first approach, after elimination of RNA of the cDNA:RNA heteroduplexes obtained from the reverse transcription reaction by an alkaline hydrolysis, a portion of the resulting single stranded cDNAs was spotted on a positively charged membrane and hybridized, using conventional methods, to a ³²P labeled probe having a sequence identical to that of the derivatized oligonucleotide. Control spots containing, 1 pmol, 100 fmol, 50 fmol, 10 fmol and 1 fmol of a control oligodeoxyribonucleotide of sequence identical to that of the derivatized oligonucleotide were included. The signal observed in the spots containing the cDNA indicated that approximately 15 fmol of the derivatized oligonucleotide had been reverse transcribed. These results demonstrate that the reverse transcription can be performed through the cap and, in particular, that reverse transcriptase crosses the 5'-P-P-P-5' bond of the cap of eukaryotic messenger RNAs.

In the second type of experiment, the single stranded cDNAs obtained from the above first strand synthesis were used as template for PCR reactions. Two types of reactions were carried out. First, specific amplification of the mRNAs for alpha globin, dehydrogenase, pp15 and elongation factor E4 were carried out using the following pairs of oligodeoxyribonucleotide primers.

alpha-globin

GLO-S: 5'CCG ACA AGA CCA ACG TCA AGG CCG C3' (SEQ ID NO:5)
GLO-As: 5'TCA CCA GCA GGC AGT GGC TTA GGA G 3' (SEQ ID NO:6)

dehydrogenase

3 DH-S: 5'AGT GAT TCC TGC TAC TTT GGA TGG C3' (SEQ ID NO:7)
3 DH-As: 5'GCT TGG TCT TGT TCT GGA GTT TAG A3' (SEQ ID NO:8)

pp15

PP15-S: 5'TCC AGA ATG GGA GAC AAG CCA ATT T3' (SEQ ID NO:9)
PP15-As: 5'AGG GAG GAG GAA ACA GCG TGA GTC C3' (SEQ ID NO:10)

Elongation factor E4

EFA1-S: 5'ATG GGA AAG GAA AAG ACT CAT ATC A3' (SEQ ID NO:11)

EF1A-As: 5'AGC AGC AAC AAT CAG GAC AGC ACA G3' (SEQ ID NO:12)

Second, non specific amplifications were also carried out with the antisense oligodeoxyribonucleotides of the pairs described above and with a primer derived from the
5 sequence of the derivatized oligodeoxyribonucleotide (5'ATCAAGAATTCGCACGAGACCATTAA3') (SEQ ID NO:13).

One twentieth of the following RT-PCR product samples were run on a 1.5% agarose gel and stained with ethidium bromide.

Sample 1: The products of a PCR reaction using the globin primers of SEQ ID NOs
10 5 and 6 in the presence of cDNA.

Sample 2: The products of a PCR reaction using the globin primers of SEQ ID NOs 5 and 6 in the absence of added cDNA.

Sample 3: The products of a PCR reaction using the dehydrogenase primers of SEQ ID NOs 7 and 8 in the presence of cDNA.

15 Sample 4: The products of a PCR reaction using the dehydrogenase primers of SEQ ID NOs 7 and 8 in the absence of added cDNA.

Sample 5: The products of a PCR reaction using the pp15 primers of SEQ ID NOs 9 and 10 in the presence of cDNA.

20 Sample 6: The products of a PCR reaction using the pp15 primers of SEQ ID NOs 9 and 10 in the absence of added cDNA.

Sample 7: The products of a PCR reaction using the EIF4 primers of SEQ ID NOs 11 and 12 in the presence of added cDNA.

Sample 8: The products of a PCR reaction using the EIF4 primers of SEQ ID NOs 11 and 12 in the absence of added cDNA.

25 A band of the size expected for the PCR product was observed only in samples 1, 3, 5 and 7, thus indicating the presence of the corresponding sequence in the cDNA population.

PCR reactions were also carried out with the antisense oligonucleotides of the globin and dehydrogenase primers (SEQ ID NOs 6 and 8) and an oligonucleotide whose sequence corresponds to that of the derivatized oligonucleotide. The presence of PCR products of the
30 expected size in the samples equivalent to above samples 1 and 3 indicated that the derivatized oligonucleotide had been linked to mRNA.

The above examples summarize the chemical procedure for enriching mRNAs for those having intact 5' ends as illustrated in Figure 1. Further detail regarding the chemical approaches for obtaining such mRNAs are disclosed in International Application No. WO96/34981, published November 7, 1996, which is incorporated herein by reference.

5 Strategies based on the above chemical modifications to the 5' cap structure may be utilized to generate cDNAs selected to include the 5' ends of the mRNAs from which they derived. In one version of such procedures, the 5' ends of the mRNAs are modified as described above. Thereafter, a reverse transcription reaction is conducted to extend a primer complementary to the 5' end of the mRNA. Single stranded RNAs are eliminated to obtain a population of cDNA/mRNA heteroduplexes in which the mRNA includes an intact 5' end. 10 The resulting heteroduplexes may be captured on a solid phase coated with a molecule capable of interacting with the molecule used to derivatize the 5' end of the mRNA. Thereafter, the strands of the heteroduplexes are separated to recover single stranded first cDNA strands which include the 5' end of the mRNA. Second strand cDNA synthesis may then proceed using conventional techniques. For example, the procedures disclosed in WO 15 96/34981 or in Carninci. *et al.*, *Genomics* 37:327-336, 1996, the disclosures of which are incorporated herein by reference, may be employed to select cDNAs which include the sequence derived from the 5' end of the coding sequence of the mRNA.

Following ligation of the oligonucleotide tag to the 5' cap of the mRNA, a reverse transcription reaction is conducted to extend a primer complementary to the mRNA to the 5' end of the mRNA. Following elimination of the RNA component of the resulting heteroduplex using standard techniques, second strand cDNA synthesis is conducted with a primer complementary to the oligonucleotide tag. 20

25 2. Enzymatic Methods for Obtaining mRNAs having Intact 5' Ends

Other techniques for selecting cDNAs extending to the 5' end of the mRNA from which they are derived are fully enzymatic. Some versions of these techniques are disclosed in Dumas Milne Edwards J.B. (Doctoral Thesis of Paris VI University, Le clonage des ADNc complets: difficultes et perspectives nouvelles. Apports pour l'etude de la regulation de l'expression de la tryptophane hydroxylase de rat, 20 Dec. 1993), EP0 625572 and Kato *et al.*, *Gene* 150:243-250, 1994, the disclosures of which are incorporated herein by reference. 30

Briefly, in such approaches, isolated mRNA is treated with alkaline phosphatase to remove the phosphate groups present on the 5' ends of uncapped incomplete mRNAs. Following this procedure, the cap present on full length mRNAs is enzymatically removed with a decapping enzyme such as T4 polynucleotide kinase or tobacco acid pyrophosphatase. An oligonucleotide, which may be either a DNA oligonucleotide or a DNA-RNA hybrid oligonucleotide having RNA at its 3' end, is then ligated to the phosphate present at the 5' end of the decapped mRNA using T4 RNA ligase. The oligonucleotide may include a restriction site to facilitate cloning of the cDNAs following their synthesis. Example 12 below describes one enzymatic method based on the doctoral thesis of Dumas.

EXAMPLE 12

Enzymatic Approach for Obtaining 5' ESTs

Twenty micrograms of PolyA+ RNA were dephosphorylated using Calf Intestinal Phosphatase (Biolabs). After a phenol chloroform extraction, the cap structure of mRNA was hydrolysed using the Tobacco Acid Pyrophosphatase (purified as described by Shinshi *et al.*, *Biochemistry* 15: 2185-2190, 1976) and a hemi 5'DNA/RNA-3' oligonucleotide having an unphosphorylated 5' end, a stretch of adenosine ribophosphate at the 3' end, and an EcoRI site near the 5' end was ligated to the 5'P ends of mRNA using the T4 RNA ligase (Biolabs). Oligonucleotides suitable for use in this procedure are preferably 30 to 50 bases in length. Oligonucleotides having an unphosphorylated 5' end may be synthesized by adding a fluorochrome at the 5' end. The inclusion of a stretch of adenosine ribophosphates at the 3' end of the oligonucleotide increases ligation efficiency. It will be appreciated that the oligonucleotide may contain cloning sites other than EcoRI.

Following ligation of the oligonucleotide to the phosphate present at the 5' end of the decapped mRNA, first and second strand cDNA synthesis is carried out using conventional methods or those specified in EP0 625,572 and Kato *et al. supra*, and Dumas Milne Edwards, *supra*, the disclosures of which are incorporated herein by reference. The resulting cDNA may then be ligated into vectors such as those disclosed in Kato *et al. supra* or other nucleic acid vectors known to those skilled in the art using techniques such as those described in Sambrook *et al.*, *Molecular Cloning: A Laboratory Manual* 2d Ed., Cold Spring Harbor Laboratory Press, 1989, the disclosure of which is incorporated herein by reference.

II. Obtention and Characterization of the 5' ESTs of the Present Invention

The 5' ESTs of the present invention were obtained using the aforementioned chemical and enzymatic approaches for enriching mRNAs for those having intact 5' ends as described below.

5 1. Obtention of 5' ESTS Using mRNAs with Intact 5' Ends

First, mRNAs were prepared as described in Example 13 below.

EXAMPLE 13

Preparation of mRNA With Intact 5' Ends

10 Total human RNAs or polyA⁺ RNAs derived from 29 different tissues were respectively purchased from LABIMO and CLONTECH and used to generate 44 cDNA libraries as follows. The purchased RNA had been isolated from cells or tissues using acid guanidium thiocyanate-phenol-chloroform extraction (Chomczynski and Sacchi, *Analytical Biochemistry* 162:156-159, 1987). PolyA⁺ RNA was isolated from total RNA (LABIMO)
15 by two passes of oligo dT chromatography, as described by Aviv and Leder, *Proc. Natl. Acad. Sci. USA* 69:1408-1412, 1972 in order to eliminate ribosomal RNA.

 The quality and the integrity of the polyA⁺ RNAs were checked. Northern blots hybridized with a globin probe were used to confirm that the mRNAs were not degraded. Contamination of the polyA⁺ mRNAs by ribosomal sequences was checked using Northern
20 blots and a probe derived from the sequence of the 28S rRNA. Preparations of mRNAs with less than 5% of rRNAs were used in library construction. To avoid constructing libraries with RNAs contaminated by exogenous sequences (prokaryotic or fungal), the presence of bacterial 16S ribosomal sequences or of two highly expressed fungal mRNAs was examined using PCR.

25 Following preparation of the mRNAs, the above described chemical and/or the enzymatic procedures for enriching mRNAs for those having intact 5' ends were employed to obtain 5' ESTs from various tissues. In both approaches, an oligonucleotide tag was attached to the 5' ends of the mRNAs. The oligonucleotide tag had an EcoRI site therein to facilitate later cloning procedures. To facilitate the processing of single stranded and double
30 stranded cDNA obtained in the construction of the libraries, the same nucleotidic sequence

was used to design the ligated oligonucleotide in both chemical and enzymatic approaches. Nevertheless, in the chemical procedure, the tag used was an oligodeoxyribonucleotide which was linked to the cap of the mRNA whereas in the enzymatic ligation, the tag was a chimeric hemi 5'DNA/RNA3' oligonucleotide which was ligated to the 5' end of decapped mRNA as described in example 12.

Following attachment of the oligonucleotide tag to the mRNA by either the chemical or enzymatic methods, the integrity of the mRNA was examined by performing a Northern blot with 200 to 500 ng of mRNA using a probe complementary to the oligonucleotide tag before performing the first strand synthesis as described in example 14.

EXAMPLE 14

cDNA Synthesis Using mRNA Templates Having Intact 5' Ends

For the mRNAs joined to oligonucleotide tags using both the chemical and enzymatic methods, first strand cDNA synthesis was performed using the Superscript II (Gibco BRL) or the Rnase H Minus M-MLV (Promega) reverse transcriptase with random nonamers as primers. In order to protect internal EcoRI sites in the cDNA from digestion at later steps in the procedure, methylated dCTP was used for first strand synthesis. After removal of RNA by an alkaline hydrolysis, the first strand of cDNA was precipitated using isopropanol in order to eliminate residual primers.

For both the chemical and the enzymatic methods, the second strand of the cDNA was synthesized with a Klenow fragment using a primer corresponding to the 5' end of the ligated oligonucleotide described in Example 12. Preferably, the primer is 20-25 bases in length. Methylated dCTP was also used for second strand synthesis in order to protect internal EcoRI sites in the cDNA from digestion during the cloning process.

Following cDNA synthesis, the cDNAs were cloned into pBlueScript as described in Example 15 below.

EXAMPLE 15

Cloning of cDNAs derived from mRNA with intact 5' ends into BlueScript

Following second strand synthesis, the ends of the cDNA were blunted with T4 DNA polymerase (Biolabs) and the cDNA was digested with EcoRI. Since methylated dCTP was

used during cDNA synthesis, the EcoRI site present in the tag was the only hemi-methylated site, hence the only site susceptible to EcoRI digestion. The cDNA was then size fractionated using exclusion chromatography (AcA, Biosepra) and fractions corresponding to cDNAs of more than 150 bp were pooled and ethanol precipitated. The cDNA was directionally cloned
5 into the SmaI and EcoRI ends of the phagemid pBlueScript vector (Stratagene). The ligation mixture was electroporated into bacteria and propagated under appropriate antibiotic selection.

Clones containing the oligonucleotide tag attached were then selected as described in Example 16 below.

10

EXAMPLE 16

Selection of Clones Having the Oligonucleotide Tag Attached Thereto

The plasmid DNAs containing 5' EST libraries made as described above were purified (Qiagen). A positive selection of the tagged clones was performed as follows.
15 Briefly, in this selection procedure, the plasmid DNA was converted to single stranded DNA using gene II endonuclease of the phage F1 in combination with an exonuclease (Chang *et al.*, *Gene* 127:95-8, 1993) such as exonuclease III or T7 gene 6 exonuclease. The resulting single stranded DNA was then purified using paramagnetic beads as described by Fry *et al.*, *Biotechniques*, 13: 124-131, 1992. In this procedure, the single stranded DNA was
20 hybridized with a biotinylated oligonucleotide having a sequence corresponding to the 3' end of the oligonucleotide described in Example 13. Preferably, the primer has a length of 20-25 bases. Clones including a sequence complementary to the biotinylated oligonucleotide were captured by incubation with streptavidin coated magnetic beads followed by magnetic selection. After capture of the positive clones, the plasmid DNA was released from the
25 magnetic beads and converted into double stranded DNA using a DNA polymerase such as the ThermoSequenase obtained from Amersham Pharmacia Biotech. Alternatively, protocols such as the one described in the Gene Trapper kit available from Gibco BRL may be used. The double stranded DNA was then electroporated into bacteria. The percentage of positive clones having the 5' tag oligonucleotide was estimated to typically rank between 90
30 and 98% using dot blot analysis.

Following electroporation, the libraries were ordered in 384-microtiter plates (MTP). A copy of the MTP was stored for future needs. Then the libraries were transferred into 96 MTP and sequenced as described below.

5

EXAMPLE 17

Sequencing of Inserts in Selected Clones

Plasmid inserts were first amplified by PCR on PE 9600 thermocyclers (Perkin-Elmer, Applied Biosystems Division, Foster City, CA), using standard SETA-A and SETA-B primers (Genset SA), AmpliTaqGold (Perkin-Elmer), dNTPs (Boehringer), buffer and cycling conditions as recommended by the Perkin-Elmer Corporation.

10

PCR products were then sequenced using automatic ABI Prism 377 sequencers (Perkin Elmer). Sequencing reactions were performed using PE 9600 thermocyclers with standard dye-primer chemistry and ThermoSequenase (Amersham Pharmacia Biotech). The primers used were either T7 or 21M13 (available from Genset SA) as appropriate. The primers were labeled with the JOE, FAM, ROX and TAMRA dyes. The dNTPs and ddNTPs used in the sequencing reactions were purchased from Boehringer. Sequencing buffer, reagent concentrations and cycling conditions were as recommended by Amersham.

15

Following the sequencing reaction, the samples were precipitated with ethanol, resuspended in formamide loading buffer, and loaded on a standard 4% acrylamide gel. Electrophoresis was performed for 2.5 hours at 3000V on an ABI 377 sequencer, and the sequence data were collected and analyzed using the ABI Prism DNA Sequencing Analysis Software, version 2.1.2.

20

2. Computer analysis of the Obtained 5' ESTs: Construction of NetGene and SignalTag databases

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The sequence data from the 44 cDNA libraries made as described above were transferred to a proprietary database, where quality control and validation steps were performed. A proprietary base-caller, working using a Unix system, automatically flagged suspect peaks, taking into account the shape of the peaks, the inter-peak resolution, and the noise level. The proprietary base-caller also performed an automatic trimming. Any stretch of 25 or fewer bases having more than 4 suspect peaks was considered unreliable and was

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discarded. Sequences corresponding to cloning vector or ligation oligonucleotides were automatically removed from the EST sequences. However, the resulting EST sequences may contain 1 to 5 bases belonging to the above mentioned sequences at their 5' end. If needed, these can easily be removed on a case to case basis.

5 Following sequencing as described above, the sequences of the 5' ESTs were entered in NetGene™, a proprietary database called for storage and manipulation as described below. It will be appreciated by those skilled in the art that the data could be stored and manipulated on any medium which can be read and accessed by a computer. Computer readable media include magnetically, optically, or electronically readable media. For example, the computer
10 readable media may be a hard disc, a floppy disc, a magnetic tape, CD-ROM, RAM, or ROM as well as other types of other media known to those skilled in the art.

 In addition, the sequence data may be stored and manipulated in a variety of data processor programs in a diversity of formats. For instance, the sequence data may be stored as text in a word processing file, such as Microsoft WORD or WORDPERFECT or as an
15 ASCII file in a variety of database programs familiar to those of skill in the art, such as DB2, SYBASE, or ORACLE.

 The computer readable media on which the sequence information is stored may be in a personal computer, a network, a server or other computer systems known to those skilled in the art. The computer or other system preferably includes the storage media described above,
20 and a processor for accessing and manipulating the sequence data. Once the sequence data has been stored, it may be manipulated and searched to locate those stored sequences which contain a desired nucleic acid sequence or which encode a protein having a particular functional domain. For example, the stored sequence information may be compared to other known sequences to identify homologies, motifs implicated in biological function, or
25 structural motifs.

 Programs which may be used to search or compare the stored sequences include the MacPattern (EMBL), BLAST, and BLAST2 program series (NCBI), basic local alignment search tool programs for nucleotide (BLASTN) and peptide (BLASTX) comparisons (Altschul *et al*, *J. Mol. Biol.* 215: 403, 1990) and FASTA (Pearson and Lipman, *Proc. Natl. Acad. Sci. USA* 85: 2444, 1988). The BLAST programs then extend the alignments on the
30 basis of defined match and mismatch criteria.

Motifs which may be detected using the above programs and those described in Example 28 include sequences encoding leucine zippers, helix-turn-helix motifs, glycosylation sites, ubiquitination sites, alpha helices, and beta sheets, signal sequences encoding signal peptides which direct the secretion of the encoded proteins, sequences implicated in transcription regulation such as homeoboxes, acidic stretches, enzymatic active sites, substrate binding sites, and enzymatic cleavage sites.

Before searching the cDNAs in the NetGene™ database for sequence motifs of interest, cDNAs derived from mRNAs which were not of interest were identified and eliminated from further consideration as described in Example 18 below.

10

EXAMPLE 18

Elimination of Undesired Sequences from Further Consideration

5' ESTs in the NetGene™ database which were derived from undesired sequences such as transfer RNAs, ribosomal RNAs, mitochondrial RNAs, prokaryotic RNAs, fungal RNAs, Alu sequences, L1 sequences, or repeat sequences were identified using the FASTA and BLASTN programs with the parameters listed in Table I.

To eliminate 5' ESTs encoding tRNAs from further consideration, the 5' EST sequences were compared to the sequences of 1190 known tRNAs obtained from EMBL release 38, of which 100 were human. The comparison was performed using FASTA on both strands of the 5' ESTs. Sequences having more than 80% homology over more than 60 nucleotides were identified as tRNA. Of the 144,341 sequences screened, 26 were identified as tRNAs and eliminated from further consideration.

To eliminate 5' ESTs encoding rRNAs from further consideration, the 5' EST sequences were compared to the sequences of 2497 known rRNAs obtained from EMBL release 38, of which 73 were human. The comparison was performed using BLASTN on both strands of the 5' ESTs with the parameter S=108. Sequences having more than 80% homology over stretches longer than 40 nucleotides were identified as rRNAs. Of the 144,341 sequences screened, 3,312 were identified as rRNAs and eliminated from further consideration.

To eliminate 5' ESTs encoding mtRNAs from further consideration, the 5' EST sequences were compared to the sequences of the two known mitochondrial genomes for

which the entire genomic sequences are available and all sequences transcribed from these mitochondrial genomes including tRNAs, rRNAs, and mRNAs for a total of 38 sequences. The comparison was performed using BLASTN on both strands of the 5' ESTs with the parameter S=108. Sequences having more than 80% homology over stretches longer than 40
5 nucleotides were identified as mtRNAs. Of the 144,341 sequences screened, 6,110 were identified as mtRNAs and eliminated from further consideration.

Sequences which might have resulted from exogenous contaminants were eliminated from further consideration by comparing the 5' EST sequences to release 46 of the EMBL bacterial and fungal divisions using BLASTN with the parameter S=144. All sequences
10 having more than 90% homology over at least 40 nucleotides were identified as exogenous contaminants. Of the 42 cDNA libraries examined, the average percentages of prokaryotic and fungal sequences contained therein were 0.2% and 0.5% respectively. Among these sequences, only one could be identified as a sequence specific to fungi. The others were either fungal or prokaryotic sequences having homologies with vertebrate sequences or
15 including repeat sequences which had not been masked during the electronic comparison.

In addition, the 5' ESTs were compared to 6093 Alu sequences and 1115 L1 sequences to mask 5' ESTs containing such repeat sequences. 5' ESTs including THE and MER repeats, SSTR sequences or satellite, micro-satellite, or telomeric repeats were also eliminated from further consideration. On average, 11.5% of the sequences in the libraries
20 contained repeat sequences. Of this 11.5%, 7% contained Alu repeats, 3.3% contained L1 repeats and the remaining 1.2% were derived from the other screened types of repetitive sequences. These percentages are consistent with those found in cDNA libraries prepared by other groups. For example, the cDNA libraries of Adams *et al.* contained between 0% and 7.4% Alu repeats depending on the source of the RNA which was used to prepare the cDNA
25 library (Adams *et al.*, *Nature* 377:174, 1996).

The sequences of those 5' ESTs remaining after the elimination of undesirable sequences were compared with the sequences of known human mRNAs to determine the accuracy of the sequencing procedures described above.

EXAMPLE 19Measurement of Sequencing Accuracy by Comparison to Known Sequences

To further determine the accuracy of the sequencing procedure described above, the sequences of 5' ESTs derived from known sequences were identified and compared to the original known sequences. First, a FASTA analysis with overhangs shorter than 5 bp on both ends was conducted on the 5' ESTs to identify those matching an entry in the public human mRNA database. The 6655 5' ESTs which matched a known human mRNA were then realigned with their cognate mRNA and dynamic programming was used to include substitutions, insertions, and deletions in the list of "errors" which would be recognized. Errors occurring in the last 10 bases of the 5' EST sequences were ignored to avoid the inclusion of spurious cloning sites in the analysis of sequencing accuracy.

This analysis revealed that the sequences incorporated in the NetGene™ database had an accuracy of more than 99.5%.

To determine the efficiency with which the above selection procedures select cDNAs which include the 5' ends of their corresponding mRNAs, the following analysis was performed.

EXAMPLE 20Determination of Efficiency of 5' EST Selection

To determine the efficiency at which the above selection procedures isolated 5' ESTs which included sequences close to the 5' end of the mRNAs from which they derived, the sequences of the ends of the 5' ESTs derived from the elongation factor 1 subunit α and ferritin heavy chain genes were compared to the known cDNA sequences of these genes. Since the transcription start sites of both genes are well characterized, they may be used to determine the percentage of derived 5' ESTs which included the authentic transcription start sites.

For both genes, more than 95% of the obtained 5' ESTs actually included sequences close to or upstream of the 5' end of the corresponding mRNAs.

To extend the analysis of the reliability of the procedures for isolating 5' ESTs from ESTs in the NetGene™ database, a similar analysis was conducted using a database composed of human mRNA sequences extracted from GenBank database release 97 for

comparison. The 5' ends of more than 85% of 5' ESTs derived from mRNAs included in the GeneBank database were located close to the 5' ends of the known sequence. As some of the mRNA sequences available in the GenBank database are deduced from genomic sequences, a 5' end matching with these sequences will be counted as an internal match.

5 Thus, the method used here underestimates the yield of ESTs including the authentic 5' ends of their corresponding mRNAs.

The EST libraries made above included multiple 5' ESTs derived from the same mRNA. The sequences of such 5' ESTs were compared to one another and the longest 5' ESTs for each mRNA were identified. Overlapping cDNAs were assembled into continuous sequences (contigs). The resulting continuous sequences were then compared to public databases to gauge their similarity to known sequences, as described in Example 21 below.

10

EXAMPLE 21

15 Clustering of the 5' ESTs and Calculation of Novelty Indices for cDNA Libraries

For each sequenced EST library, the sequences were clustered by the 5' end. Each sequence in the library was compared to the others with BLASTN2 (direct strand, parameters S=107). ESTs with High Scoring Segment Pairs (HSPs) at least 25 bp long, having 95% identical bases and beginning closer than 10 bp from each EST 5' end were grouped. The longest sequence found in the cluster was used as representative of the group. A global clustering between libraries was then performed leading to the definition of super-contigs.

20

To assess the yield of new sequences within the EST libraries, a novelty rate (NR) was defined as: $NR = 100 \times (\text{Number of new unique sequences found in the library} / \text{Total number of sequences from the library})$. Typically, novelty rating ranged between 10% and 41% depending on the tissue from which the EST library was obtained. For most of the libraries, the random sequencing of 5' EST libraries was pursued until the novelty rate reached 20%.

25

Following characterization as described above, the collection of 5' ESTs in NetGene™ was screened to identify those 5' ESTs bearing potential signal sequences as described in Example 22 below.

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EXAMPLE 22**Identification of Potential Signal Sequences in 5' ESTs**

The 5' ESTs in the NetGene™ database were screened to identify those having an uninterrupted open reading frame (ORF) longer than 45 nucleotides beginning with an ATG codon and extending to the end of the EST. Approximately half of the cDNA sequences in NetGene™ contained such an ORF. The ORFs of these 5' ESTs were then searched to identify potential signal motifs using slight modifications of the procedures disclosed in Von Heijne, *Nucleic Acids Res.* 14:4683-4690, 1986, the disclosure of which is incorporated herein by reference. Those 5' EST sequences encoding a stretch of at least 15 amino acid long with a score of at least 3.5 in the Von Heijne signal peptide identification matrix were considered to possess a signal sequence. Those 5' ESTs which matched a known human mRNA or EST sequence and had a 5' end more than 20 nucleotides downstream of the known 5' end were excluded from further analysis. The remaining cDNAs having signal sequences therein were included in a database called SignalTag™.

15

To confirm the accuracy of the above method for identifying signal sequences, the analysis of Example 23 was performed.

EXAMPLE 23**Confirmation of Accuracy of Identification of Potential Signal Sequences in 5' ESTs**

The accuracy of the above procedure for identifying signal sequences encoding signal peptides was evaluated by applying the method to the 43 amino acids located at the N terminus of all human SwissProt proteins. The computed Von Heijne score for each protein was compared with the known characterization of the protein as being a secreted protein or a non-secreted protein. In this manner, the number of non-secreted proteins having a score higher than 3.5 (false positives) and the number of secreted proteins having a score lower than 3.5 (false negatives) could be calculated.

25

Using the results of the above analysis, the probability that a peptide encoded by the 5' region of the mRNA is in fact a genuine signal peptide based on its Von Heijne's score was calculated based on either the assumption that 10% of human proteins are secreted or the

30

assumption that 20% of human proteins are secreted. The results of this analysis are shown in Figure 2 and in Table IV.

Using the above method of identification of secretory proteins, 5' ESTs of the following polypeptides known to be secreted were obtained: human glucagon, gamma
5 interferon induced monokine precursor, secreted cyclophilin-like protein, human pleiotropin, and human biotinidase precursor. Thus, the above method successfully identified those 5' ESTs which encode a signal peptide.

To confirm that the signal peptide encoded by the 5' ESTs actually functions as a
10 signal peptide, the signal sequences from the 5' ESTs may be cloned into a vector designed for the identification of signal peptides. Such vectors are designed to confer the ability to grow in selective medium only to host cells containing a vector with an operably linked signal sequence. For example, to confirm that a 5' EST encodes a genuine signal peptide, the signal
15 sequence of the 5' EST may be inserted upstream and in frame with a non-secreted form of the yeast invertase gene in signal peptide selection vectors such as those described in U.S. Patent No. 5,536,637, the disclosure of which is incorporated herein by reference. Growth of host cells containing signal sequence selection vectors with the correctly inserted 5' EST
signal sequence confirms that the 5' EST encodes a genuine signal peptide.

Alternatively, the presence of a signal peptide may be confirmed by cloning the
20 extended cDNAs obtained using the ESTs into expression vectors such as pXT1 (as described below in example 30), or by constructing promoter-signal sequence-reporter gene vectors which encode fusion proteins between the signal peptide and an assayable reporter protein. After introduction of these vectors into a suitable host cell, such as COS cells or NIH 3T3 cells, the growth medium may be harvested and analyzed for the presence of the
25 secreted protein. The medium from these cells is compared to the medium from control cells containing vectors lacking the signal sequence or extended cDNA insert to identify vectors which encode a functional signal peptide or an authentic secreted protein.

Those 5' ESTs which encoded a signal peptide, as determined by the method of Example 22 above, were further grouped into four categories based on their homology to
30 known sequences as described in Example 24 below.

EXAMPLE 24Categorization of 5' ESTs Encoding a Signal Peptide

Those 5' ESTs having a sequence not matching any known vertebrate sequence nor any publicly available EST sequence were designated "new." Of the sequences in the SignalTag™ database, 947 of the 5' ESTs having a Von Heijne's score of at least 3.5 fell into this category.

Those 5' ESTs having a sequence not matching any vertebrate sequence but matching a publicly known EST were designated "EST-ext", provided that the known EST sequence was extended by at least 40 nucleotides in the 5' direction. Of the sequences in the SignalTag™ database, 150 of the 5' ESTs having a Von Heijne's score of at least 3.5 fell into this category.

Those ESTs not matching any vertebrate sequence but matching a publicly known EST without extending the known EST by at least 40 nucleotides in the 5' direction were designated "EST." Of the sequences in the SignalTag™ database, 599 of the 5' ESTs having a Von Heijne's score of at least 3.5 fell into this category.

Those 5' ESTs matching a human mRNA sequence but extending the known sequence by at least 40 nucleotides in the 5' direction were designated "VERT-ext." Of the sequences in the SignalTag™ database, 23 of the 5' ESTs having a Von Heijne's score of at least 3.5 fell into this category. Included in this category was a 5' EST which extended the known sequence of the human translocase mRNA by more than 200 bases in the 5' direction. A 5' EST which extended the sequence of a human tumor suppressor gene in the 5' direction was also identified.

Table V shows the distribution of 5' ESTs in each category and the number of 5' ESTs in each category having a given minimum von Heijne's score.

3. Evaluation of Spatial and Temporal Expression of mRNAs Corresponding to the 5'ESTs or Extended cDNAs

Each of the 5' ESTs was also categorized based on the tissue from which its corresponding mRNA was obtained, as described below in Example 25.

EXAMPLE 25

Categorization of Expression Patterns

Table VI shows the distribution of 5' ESTs in each of the above defined category with respect to the tissue from which the 5'ESTs of the corresponding mRNA were obtained.

5 Table II provides the sequence identification numbers of 5' EST sequences derived from brain, the categories in which these sequences fall, and the von Heijne's score of the signal peptides which they encode. The 5' EST sequences and the amino acid sequences they encode are provided in the appended sequence listings. Table III provides the sequence ID numbers of the 5' ESTs and the sequences of the signal peptides which they encode. The
10 sequences of the 5' ESTs and the polypeptides they encode are provided in the sequence listing appended hereto.

The sequences of DNA SEQ ID NOs: 38-270 can readily be screened for any errors therein and any sequence ambiguities can be resolved by resequencing a fragment containing such errors or ambiguities on both strands. Such fragments may be obtained from the
15 plasmids stored in the inventors' laboratory or can be isolated using the techniques described herein. Resolution of any such ambiguities or errors may be facilitated by using primers which hybridize to sequences located close to the ambiguous or erroneous sequences. For example, the primers may hybridize to sequences within 50-75 bases of the ambiguity or error. Upon resolution of an error or ambiguity, the corresponding corrections can be made
20 in the protein sequences encoded by the DNA containing the error or ambiguity.

In addition to categorizing the 5' ESTs with respect to their tissue of origin, the spatial and temporal expression patterns of the mRNAs corresponding to the 5' ESTs, as well as their expression levels, may be determined as described in Example 26 below. Characterization of the spatial and temporal expression patterns and expression levels of these
25 mRNAs is useful for constructing expression vectors capable of producing a desired level of gene product in a desired spatial or temporal manner, as will be discussed in more detail below.

Furthermore, 5' ESTs whose corresponding mRNAs are associated with disease states may also be identified. For example, a particular disease may result from the lack of
30 expression, over expression, or under expression of an mRNA corresponding to a 5' EST. By comparing mRNA expression patterns and quantities in samples taken from healthy

individuals with those from individuals suffering from a particular disease, 5' ESTs responsible for the disease may be identified.

It will be appreciated that the results of the above characterization procedures for 5' ESTs also apply to extended cDNAs (obtainable as described below) which contain sequences adjacent to the 5' ESTs. It will also be appreciated that if desired, characterization may be delayed until extended cDNAs have been obtained rather than characterizing the ESTs themselves.

EXAMPLE 26

Evaluation of Expression Levels and Patterns of mRNAs

Corresponding to 5' ESTs or Extended cDNAs

Expression levels and patterns of mRNAs corresponding to 5' ESTs or extended cDNAs (obtainable as described below in example 27) may be analyzed by solution hybridization with long probes as described in International Patent Application No. WO 97/05277, the entire contents of which are hereby incorporated by reference. Briefly, a 5' EST, extended cDNA, or fragment thereof corresponding to the gene encoding the mRNA to be characterized is inserted at a cloning site immediately downstream of a bacteriophage (T3, T7 or SP6) RNA polymerase promoter to produce antisense RNA. Preferably, the 5' EST or extended cDNA has 100 or more nucleotides. The plasmid is linearized and transcribed in the presence of ribonucleotides comprising modified ribonucleotides (*i.e.* biotin-UTP and DIG-UTP). An excess of this doubly labeled RNA is hybridized in solution with mRNA isolated from cells or tissues of interest. The hybridizations are performed under standard stringent conditions (40-50°C for 16 hours in an 80% formamide, 0.4 M NaCl buffer, pH 7-8). The unhybridized probe is removed by digestion with ribonucleases specific for single-stranded RNA (*i.e.* RNases CL3, T1, Phy M, U2 or A). The presence of the biotin-UTP modification enables capture of the hybrid on a microtitration plate coated with streptavidin. The presence of the DIG modification enables the hybrid to be detected and quantified by ELISA using an anti-DIG antibody coupled to alkaline phosphatase.

The 5' ESTs, extended cDNAs, or fragments thereof may also be tagged with nucleotide sequences for the serial analysis of gene expression (SAGE) as disclosed in UK

Patent Application No. 2 305 241 A, the entire contents of which are incorporated by reference. In this method, cDNAs are prepared from a cell, tissue, organism or other source of nucleic acid for which gene expression patterns must be determined. The resulting cDNAs are separated into two pools. The cDNAs in each pool are cleaved with a first restriction endonuclease, called an anchoring enzyme, having a recognition site which is likely to be present at least once in most cDNAs. The fragments which contain the 5' or 3' most region of the cleaved cDNA are isolated by binding to a capture medium such as streptavidin coated beads. A first oligonucleotide linker having a first sequence for hybridization of an amplification primer and an internal restriction site for a so-called tagging endonuclease is ligated to the digested cDNAs in the first pool. Digestion with the second endonuclease produces short tag fragments from the cDNAs.

A second oligonucleotide having a second sequence for hybridization of an amplification primer and an internal restriction site is ligated to the digested cDNAs in the second pool. The cDNA fragments in the second pool are also digested with the tagging endonuclease to generate short tag fragments derived from the cDNAs in the second pool. The tags resulting from digestion of the first and second pools with the anchoring enzyme and the tagging endonuclease are ligated to one another to produce so-called ditags. In some embodiments, the ditags are concatamerized to produce ligation products containing from 2 to 200 ditags. The tag sequences are then determined and compared to the sequences of the 5' ESTs or extended cDNAs to determine which 5' ESTs or extended cDNAs are expressed in the cell, tissue, organism, or other source of nucleic acids from which the tags were derived. In this way, the expression pattern of the 5' ESTs or extended cDNAs in the cell, tissue, organism, or other source of nucleic acids is obtained.

Quantitative analysis of gene expression may also be performed using arrays. As used herein, the term array means a one dimensional, two dimensional, or multidimensional arrangement of full length cDNAs (*i.e.* extended cDNAs which include the coding sequence for the signal peptide, the coding sequence for the mature protein, and a stop codon), extended cDNAs, 5' ESTs or fragments thereof of sufficient length to permit specific detection of gene expression. Preferably, the fragments are at least 15 nucleotides in length. More preferably, the fragments are at least 100 nucleotide long. More preferably, the

fragments are more than 100 nucleotides in length. In some embodiments, the fragments may be more than 500 nucleotide long.

For example, quantitative analysis of gene expression may be performed with full length cDNAs as defined below, extended cDNAs, 5' ESTs, or fragments thereof in a complementary DNA microarray as described by Schena *et al.* (*Science* 270:467-470, 1995; *Proc. Natl. Acad. Sci. U.S.A.* 93:10614-10619, 1996). Full length cDNAs, extended cDNAs, 5' ESTs or fragments thereof are amplified by PCR and arrayed from 96-well microtiter plates onto silylated microscope slides using high-speed robotics. Printed arrays are incubated in a humid chamber to allow rehydration of the array elements and rinsed, once in 0.2% SDS for 1 min, twice in water for 1 min and once for 5 min in sodium borohydride solution. The arrays are submerged in water for 2 min at 95°C, transferred into 0.2% SDS for 1 min, rinsed twice with water, air dried and stored in the dark at 25°C.

Cell or tissue mRNA is isolated or commercially obtained and probes are prepared by a single round of reverse transcription. Probes are hybridized to 1 cm² microarrays under a 14 x 14 mm glass coverslip for 6-12 hours at 60°C. Arrays are washed for 5 min at 25°C in low stringency wash buffer (1 x SSC/0.2% SDS), then for 10 min at room temperature in high stringency wash buffer (0.1 x SSC/0.2% SDS). Arrays are scanned in 0.1 x SSC using a fluorescence laser scanning device fitted with a custom filter set. Accurate differential expression measurements are obtained by taking the average of the ratios of two independent hybridizations.

Quantitative analysis of the expression of genes may also be performed with full length cDNAs, extended cDNAs, 5' ESTs, or fragments thereof in complementary DNA arrays as described by Pietu *et al.* (*Genome Research* 6:492-503, 1996). The full length cDNAs, extended cDNAs, 5' ESTs or fragments thereof are PCR amplified and spotted on membranes. Then, mRNAs originating from various tissues or cells are labeled with radioactive nucleotides. After hybridization and washing in controlled conditions, the hybridized mRNAs are detected by phospho-imaging or autoradiography. Duplicate experiments are performed and a quantitative analysis of differentially expressed mRNAs is then performed.

Alternatively, expression analysis of the 5' ESTs or extended cDNAs can be done through high density nucleotide arrays as described by Lockhart *et al.* (*Nature Biotechnology*

14: 1675-1680, 1996) and Sosnowsky *et al.* (*Proc. Natl. Acad. Sci.* 94:1119-1123, 1997). Oligonucleotides of 15-50 nucleotides corresponding to sequences of the 5' ESTs or extended cDNAs are synthesized directly on the chip (Lockhart *et al.*, *supra*) or synthesized and then addressed to the chip (Sosnowsky *et al.*, *supra*). Preferably, the oligonucleotides are about 20 nucleotides in length.

cDNA probes labeled with an appropriate compound, such as biotin, digoxigenin or fluorescent dye, are synthesized from the appropriate mRNA population and then randomly fragmented to an average size of 50 to 100 nucleotides. The said probes are then hybridized to the chip. After washing as described in Lockhart *et al.*, *supra* and application of different electric fields (Sonowsky *et al.*, *supra.*), the dyes or labeling compounds are detected and quantified. Duplicate hybridizations are performed. Comparative analysis of the intensity of the signal originating from cDNA probes on the same target oligonucleotide in different cDNA samples indicates a differential expression of the mRNA corresponding to the 5' EST or extended cDNA from which the oligonucleotide sequence has been designed.

III. Use of 5' ESTs to Clone Extended cDNAs and to Clone the Corresponding Genomic DNAs

Once 5' ESTs which include the 5' end of the corresponding mRNAs have been selected using the procedures described above, they can be utilized to isolate extended cDNAs which contain sequences adjacent to the 5' ESTs. The extended cDNAs may include the entire coding sequence of the protein encoded by the corresponding mRNA, including the authentic translation start site, the signal sequence, and the sequence encoding the mature protein remaining after cleavage of the signal peptide. Such extended cDNAs are referred to herein as "full length cDNAs." Alternatively, the extended cDNAs may include only the sequence encoding the mature protein remaining after cleavage of the signal peptide, or only the sequence encoding the signal peptide.

Example 27 below describes a general method for obtaining extended cDNAs using 5' ESTs. Example 28 below provides experimental results, using the method explained in example 27, describing several extended cDNAs including the entire coding sequence and authentic 5' end of the corresponding mRNA for several secreted proteins.

The methods of Examples 27, 28, and 29 can also be used to obtain extended cDNAs which encode less than the entire coding sequence of the secreted proteins encoded by the genes corresponding to the 5' ESTs. In some embodiments, the extended cDNAs isolated using these methods encode at least 10 amino acids of one of the proteins encoded by the sequences of SEQ ID NOs: 38-270. In further embodiments, the extended cDNAs encode at least 20 amino acids of the proteins encoded by the sequences of SEQ ID NOs: 38-270. In further embodiments, the extended cDNAs encode at least 30 amino amino acids of the sequences of SEQ ID NOs: 38-270. In a preferred embodiment, the extended cDNAs encode a full length protein sequence, which includes the protein coding sequences of SEQ ID NOs: 38-270.

EXAMPLE 27

General Method for Using 5' ESTs to Clone and Sequence cDNAs which Include the Entire Coding Region and the Authentic 5' End of the Corresponding mRNA

The following general method has been used to quickly and efficiently isolate extended cDNAs having the authentic 5' ends of their corresponding mRNAs as well as the full protein coding sequence and including sequence adjacent to the sequences of the 5' ESTs used to obtain them. This method may be applied to obtain extended cDNAs for any 5' EST in the NetGene™ database, including those 5' ESTs encoding polypeptides belonging to secreted proteins. The method is summarized in figure 3.

1. Obtention of Extended cDNAs

a) First strand synthesis

The method takes advantage of the known 5' sequence of the mRNA. A reverse transcription reaction is conducted on purified mRNA with a poly 14dT primer containing a 49 nucleotide sequence at its 5' end allowing the addition of a known sequence at the end of the cDNA which corresponds to the 3' end of the mRNA. For example, the primer may have the following sequence: 5'-ATC GTT GAG ACT CGT ACC AGC AGA GTC ACG AGA GAG ACT ACA CGG TAC TGG TTT TTT TTT TTT TTVN -3' (SEQ ID NO:14). Those skilled in the art will appreciate that other sequences may also be added to the poly dT sequence and used to prime the first strand synthesis. Using this primer and a reverse

transcriptase such as the Superscript II (Gibco BRL) or Rnase H Minus M-MLV (Promega) enzyme, a reverse transcript anchored at the 3' polyA site of the RNAs is generated.

After removal of the mRNA hybridized to the first cDNA strand by alkaline hydrolysis, the products of the alkaline hydrolysis and the residual poly dT primer are eliminated with an exclusion column such as an Aca34 (Biosepra) matrix as explained in Example 11.

b) Second strand synthesis

A pair of nested primers on each end is designed based on the known 5' sequence from the 5' EST and the known 3' end added by the poly dT primer used in the first strand synthesis. Softwares used to design primers are either based on GC content and melting temperatures of oligonucleotides, such as OSP (Illier and Green, *PCR Meth. Appl.* 1:124-128, 1991), or based on the octamer frequency disparity method (Griffais *et al.*, *Nucleic Acids Res.* 19: 3887-3891, 1991) such as PC-Rare (<http://bioinformatics.weizmann.ac.il/software/PC-Rare/doc/manuel.html>).

Preferably, the nested primers at the 5' end are separated from one another by four to nine bases. The 5' primer sequences may be selected to have melting temperatures and specificities suitable for use in PCR.

Preferably, the nested primers at the 3' end are separated from one another by four to nine bases. For example, the nested 3' primers may have the following sequences: (5'- CCA GCA GAG TCA CGA GAG AGA CTA CAC GG -3'(SEQ ID NO:15), and 5'- CAC GAG AGA GAC TAC ACG GTA CTG G -3' (SEQ ID NO:16). These primers were selected because they have melting temperatures and specificities compatible with their use in PCR. However, those skilled in the art will appreciate that other sequences may also be used as primers.

The first PCR run of 25 cycles is performed using the Advantage Tth Polymerase Mix (Clontech) and the outer primer from each of the nested pairs. A second 20 cycle PCR using the same enzyme and the inner primer from each of the nested pairs is then performed on 1/2500 of the first PCR product. Thereafter, the primers and nucleotides are removed.

2. Sequencing of Full Length Extended cDNAs or Fragments Thereof

Due to the lack of position constraints on the design of 5' nested primers compatible for PCR use using the OSP software, amplicons of two types are obtained. Preferably, the second 5' primer is located upstream of the translation initiation codon thus yielding a nested PCR product containing the whole coding sequence. Such a full length extended cDNA undergoes a direct cloning procedure as described in section a. However, in some cases, the second 5' primer is located downstream of the translation initiation codon, thereby yielding a PCR product containing only part of the ORF. Such incomplete PCR products are submitted to a modified procedure described in section b.

a) Nested PCR products containing complete ORFs

When the resulting nested PCR product contains the complete coding sequence, as predicted from the 5'EST sequence, it is cloned in an appropriate vector such as pED6dpc2, as described in section 3.

b) Nested PCR products containing incomplete ORFs

When the amplicon does not contain the complete coding sequence, intermediate steps are necessary to obtain both the complete coding sequence and a PCR product containing the full coding sequence. The complete coding sequence can be assembled from several partial sequences determined directly from different PCR products as described in the following section.

Once the full coding sequence has been completely determined, new primers compatible for PCR use are designed to obtain amplicons containing the whole coding region. However, in such cases, 3' primers compatible for PCR use are located inside the 3' UTR of the corresponding mRNA, thus yielding amplicons which lack part of this region, *i.e.* the polyA tract and sometimes the polyadenylation signal, as illustrated in figure 3. Such full length extended cDNAs are then cloned into an appropriate vector as described in section 3.

c) Sequencing extended cDNAs

Sequencing of extended cDNAs is performed using a Die Terminator approach with the AmpliTaq DNA polymerase FS kit available from Perkin Elmer.

In order to sequence PCR fragments, primer walking is performed using software such as OSP to choose primers and automated computer software such as ASMG (Sutton *et*

al., Genome Science Technol. 1: 9-19, 1995) to construct contigs of walking sequences including the initial 5' tag using minimum overlaps of 32 nucleotides. Preferably, primer walking is performed until the sequences of full length cDNAs are obtained.

Completion of the sequencing of a given extended cDNA fragment is assessed as follows. Since sequences located after a polyA tract are difficult to determine precisely in the case of uncloned products, sequencing and primer walking processes for PCR products are interrupted when a polyA tract is identified in extended cDNAs obtained as described in case b. The sequence length is compared to the size of the nested PCR product obtained as described above. Due to the limited accuracy of the determination of the PCR product size by gel electrophoresis, a sequence is considered complete if the size of the obtained sequence is at least 70 % the size of the first nested PCR product. If the length of the sequence determined from the computer analysis is not at least 70% of the length of the nested PCR product, these PCR products are cloned and the sequence of the insertion is determined. When Northern blot data are available, the size of the mRNA detected for a given PCR product is used to finally assess that the sequence is complete. Sequences which do not fulfill the above criteria are discarded and will undergo a new isolation procedure.

Sequence data of all extended cDNAs are then transferred to a proprietary database, where quality controls and validation steps are carried out as described in example 15.

3. Cloning of Full Length Extended cDNAs

The PCR product containing the full coding sequence is then cloned in an appropriate vector. For example, the extended cDNAs can be cloned into the expression vector pED6dpc2 (DiscoverEase, Genetics Institute, Cambridge, MA) as follows. pED6dpc2 vector DNA is prepared with blunt ends by performing an EcoRI digestion followed by a fill in reaction. The blunt ended vector is dephosphorylated. After removal of PCR primers and ethanol precipitation, the PCR product containing the full coding sequence or the extended cDNA obtained as described above is phosphorylated with a kinase subsequently removed by phenol-Sevag extraction and precipitation. The double stranded extended cDNA is then ligated to the vector and the resulting expression plasmid introduced into appropriate host cells.

Since the PCR products obtained as described above are blunt ended molecules that can be cloned in either direction, the orientation of several clones for each PCR product is determined. Then, 4 to 10 clones are ordered in microtiter plates and subjected to a PCR reaction using a first primer located in the vector close to the cloning site and a second primer
5 located in the portion of the extended cDNA corresponding to the 3' end of the mRNA. This second primer may be the antisense primer used in anchored PCR in the case of direct cloning (case a) or the antisense primer located inside the 3'UTR in the case of indirect cloning (case b). Clones in which the start codon of the extended cDNA is operably linked to the promoter in the vector so as to permit expression of the protein encoded by the extended cDNA are
10 conserved and sequenced. In addition to the ends of cDNA inserts, approximately 50 bp of vector DNA on each side of the cDNA insert are also sequenced.

The cloned PCR products are then entirely sequenced according to the aforementioned procedure. In this case, contiguation of long fragments is then performed on walking sequences that have already contiguated for uncloned PCR products during
15 primer walking. Sequencing of cloned amplicons is complete when the resulting contigs include the whole coding region as well as overlapping sequences with vector DNA on both ends.

4. Computer analysis of Full Length Extended cDNA

20 Sequences of all full length extended cDNAs are then submitted to further analysis as described below. Before searching the extended full length cDNAs for sequences of interest, extended cDNAs which are not of interest (vector RNAs, transfer RNAs, ribosomal RNAs, mitochondrial RNAs, prokaryotic RNAs and fungal RNAs) are discarded using methods essentially similar to those described for 5'ESTs in Example 18.

a) Identification of structural features

Structural features, e.g. polyA tail and polyadenylation signal, of the sequences of full length extended cDNAs are subsequently determined as follows.

A polyA tail is defined as a homopolymeric stretch of at least 11 A with at most one alternative base within it. The polyA tail search is restricted to the last 100 nt of the sequence
30 and limited to stretches of 11 consecutive A's because sequencing reactions are often not

readable after such a polyA stretch. Stretches having more than 90% homology over 8 nucleotides are identified as polyA tails using BLAST2N.

To search for a polyadenylation signal, the polyA tail is clipped from the full-length sequence. The 50 bp preceding the polyA tail are first searched for the canonic polyadenylation AAUAAA signal and, if the canonic signal is not detected, for the
5 alternative AUUAAA signal (Sheets *et al.*, *Nuc. Acids Res.* 18: 5799-5805, 1990). If neither of these consensus polyadenylation signals is found, the canonic motif is searched again allowing one mismatch to account for possible sequencing errors. More than 85 % of identified polyadenylation signals of either type actually ends 10 to 30 bp from the
10 polyA tail. Alternative AUUAAA signals represents approximately 15 % of the total number of identified polyadenylation signals.

b) Identification of functional features

Functional features, e.g. ORFs and signal sequences, of the sequences of full length extended cDNAs were subsequently determined as follows.

15 The 3 upper strand frames of extended cDNAs are searched for ORFs defined as the maximum length fragments beginning with a translation initiation codon and ending with a stop codon. ORFs encoding at least 20 amino acids are preferred.

Each found ORF is then scanned for the presence of a signal peptide in the first 50 amino-acids or, where appropriate, within shorter regions down to 20 amino acids or
20 less in the ORF, using the matrix method of von Heijne (*Nuc. Acids Res.* 14: 4683-4690, 1986), the disclosure of which is incorporated herein by reference as described in Example 22.

c) Homology to either nucleotidic or proteic sequences

25 Categorization of full-length sequences may be achieved using procedures essentially similar to those described for 5'ESTs in Example 24.

Extended cDNAs prepared as described above may be subsequently engineered to obtain nucleic acids which include desired portions of the extended cDNA using conventional techniques such as subcloning, PCR, or *in vitro* oligonucleotide synthesis. For example,
30 nucleic acids which include only the full coding sequences (*i.e.* the sequences encoding the signal peptide and the mature protein remaining after the signal peptide is cleaved off) may be

obtained using techniques known to those skilled in the art. Alternatively, conventional techniques may be applied to obtain nucleic acids which contain only the coding sequences for the mature protein remaining after the signal peptide is cleaved off or nucleic acids which contain only the coding sequences for the signal peptides.

5 Similarly, nucleic acids containing any other desired portion of the coding sequences for the secreted protein may be obtained. For example, the nucleic acid may contain at least 10 consecutive bases of an extended cDNA such as one of the extended cDNAs described below. In another embodiment, the nucleic acid may contain at least 15 consecutive bases of an extended cDNA such as one of the extended cDNAs described below. Alternatively, the
10 nucleic acid may contain at least 20 consecutive bases of an extended cDNA such as one of the extended cDNAs described below. In another embodiment, the nucleic acid may contain at least 25 consecutive bases of an extended cDNA such as one of the extended cDNAs described below. In yet another embodiment, the nucleic acid may contain at least 40 consecutive bases of an extended cDNA such as one of the extended cDNAs described
15 below.

Once an extended cDNA has been obtained, it can be sequenced to determine the amino acid sequence it encodes. Once the encoded amino acid sequence has been determined, one can create and identify any of the many conceivable cDNAs that will encode that protein by simply using the degeneracy of the genetic code. For example, allelic variants
20 or other homologous nucleic acids can be identified as described below. Alternatively, nucleic acids encoding the desired amino acid sequence can be synthesized *in vitro*.

In a preferred embodiment, the coding sequence may be selected using the known codon or codon pair preferences for the host organism in which the cDNA is to be expressed.

The extended cDNAs derived from the 5' ESTS of the present invention were
25 obtained as described in Example 28 below.

EXAMPLE 28

Characterization of cloned extended cDNAs obtained using 5' ESTs

The procedure described in Example 27 above was used to obtain the extended
30 cDNAs derived from the 5' ESTs of the present invention in a variety of tissues. The following list provides a few examples of thus obtained extended cDNAs.

Using this approach, the full length cDNA of SEQ ID NO:17 (internal identification number 48-19-3-G1-FL1) was obtained. This cDNA falls into the "EST-ext" category described above and encodes the signal peptide MKKVLLLITAILAVAVG (SEQ ID NO: 18) having a von Heijne score of 8.2.

5 The full length cDNA of SEQ ID NO:19 (internal identification number 58-34-2-E7-FL2) was also obtained using this procedure. This cDNA falls into the "EST-ext" category described above and encodes the signal peptide MWWFQQGLSFLPSALVIWTS (SEQ ID NO:20) having a von Heijne score of 5.5.

10 Another full length cDNA obtained using the procedure described above has the sequence of SEQ ID NO:21 (internal identification number 51-27-1-E8-FL1). This cDNA, falls into the "EST-ext" category described above and encodes the signal peptide MVLTTLP SANSANSPVNMPTTGPNLSYASSALSPCLT (SEQ ID NO:22) having a von Heijne score of 5.9.

15 The above procedure was also used to obtain a full length cDNA having the sequence of SEQ ID NO:23 (internal identification number 76-4-1-G5-FL1). This cDNA falls into the "EST-ext" category described above and encodes the signal peptide ILSTVTALTFAXA (SEQ ID NO:24) having a von Heijne score of 5.5.

20 The full length cDNA of SEQ ID NO:25 (internal identification number 51-3-3-B10-FL3) was also obtained using this procedure. This cDNA falls into the "new" category described above and encodes a signal peptide LVLTLCTLPLAVA (SEQ ID NO:26) having a von Heijne score of 10.1.

25 The full length cDNA of SEQ ID NO:27 (internal identification number 58-35-2-F10-FL2) was also obtained using this procedure. This cDNA falls into the "new" category described above and encodes a signal peptide LWLLFFLVTAIHA (SEQ ID NO:28) having a von Heijne score of 10.7.

30 Bacterial clones containing plasmids containing the full length cDNAs described above are presently stored in the inventor's laboratories under the internal identification numbers provided above. The inserts may be recovered from the stored materials by growing an aliquot of the appropriate bacterial clone in the appropriate medium. The plasmid DNA can then be isolated using plasmid isolation procedures familiar to those skilled in the art such as alkaline lysis minipreps or large scale alkaline lysis plasmid isolation procedures. If desired

the plasmid DNA may be further enriched by centrifugation on a cesium chloride gradient, size exclusion chromatography, or anion exchange chromatography. The plasmid DNA obtained using these procedures may then be manipulated using standard cloning techniques familiar to those skilled in the art. Alternatively, a PCR can be done with primers designed at
5 both ends of the cDNA insertion. The PCR product which corresponds to the cDNA can then be manipulated using standard cloning techniques familiar to those skilled in the art.

The polypeptides encoded by the extended cDNAs may be screened for the presence of known structural or functional motifs or for the presence of signatures, small amino acid sequences which are well conserved amongst the members of a protein family. The
10 conserved regions have been used to derive consensus patterns or matrices included in the PROSITE data bank, in particular in the file prosite.dat (Release 13.0 of November 1995, located at <http://expasy.hcuge.ch/sprot/prosite.html>. Prosite_convert and prosite_scan programs (http://ulrec3.unil.ch/ftpserveur/prosite_scan) may be used to find signatures on the extended cDNAs.

15 For each pattern obtained with the prosite_convert program from the prosite.dat file, the accuracy of the detection on a new protein sequence may be assessed by evaluating the frequency of irrelevant hits on the population of human secreted proteins included in the data bank SWISSPROT. The ratio between the number of hits on shuffled proteins (with a window size of 20 amino acids) and the number of hits on native (unshuffled) proteins may be
20 used as an index. Every pattern for which the ratio is greater than 20% (one hit on shuffled proteins for 5 hits on native proteins) may be skipped during the search with prosite_scan. The program used to shuffle protein sequences (db_shuffled) and the program used to determine the statistics for each pattern in the protein data banks (prosite_statistics) are available on the ftp site http://ulrec3.unil.ch/ftpserveur/prosite_scan.

25 In addition to PCR based methods for obtaining extended cDNAs, traditional hybridization based methods may also be employed. These methods may also be used to obtain the genomic DNAs which encode the mRNAs from which the 5' ESTs were derived, mRNAs corresponding to the extended cDNAs, or nucleic acids which are homologous to
30 extended cDNAs or 5' ESTs. Example 29 below provides examples of such methods.

EXAMPLE 29

Methods for Obtaining cDNAs which include the Entire Coding Region and the Authentic
5'End of the Corresponding mRNA

5 A full length cDNA library can be made using the strategies described in Examples 13, 14, 15, and 16 above by replacing the random nonamer used in Example 14 with an oligo-dT primer. For instance, the oligonucleotide of SEQ ID NO:14 may be used.

Alternatively, a cDNA library or genomic DNA library may be obtained from a commercial source or made using techniques familiar to those skilled in the art. Such cDNA or genomic DNA libraries may be used to isolate extended cDNAs obtained from 5' EST or nucleic acids homologous to extended cDNAs or 5' EST as follows. The cDNA library or genomic DNA library is hybridized to a detectable probe comprising at least 10 consecutive nucleotides from the 5' EST or extended cDNA using conventional techniques. Preferably, the probe comprises at least 12, 15, or 17 consecutive nucleotides from the 5' EST or extended cDNA. More preferably, the probe comprises at least 20 to 30 consecutive nucleotides from the 5' EST or extended cDNA. In some embodiments, the probe comprises more than 30 nucleotides from the 5' EST or extended cDNA.

Techniques for identifying cDNA clones in a cDNA library which hybridize to a given probe sequence are disclosed in Sambrook *et al.*, *Molecular Cloning: A Laboratory Manual 2d Ed.*, Cold Spring Harbor Laboratory Press, 1989, the disclosure of which is incorporated herein by reference. The same techniques may be used to isolate genomic DNAs.

Briefly, cDNA or genomic DNA clones which hybridize to the detectable probe are identified and isolated for further manipulation as follows. A probe comprising at least 10 consecutive nucleotides from the 5' EST or extended cDNA is labeled with a detectable label such as a radioisotope or a fluorescent molecule. Preferably, the probe comprises at least 12, 15, or 17 consecutive nucleotides from the 5' EST or extended cDNA. More preferably, the probe comprises 20 to 30 consecutive nucleotides from the 5' EST or extended cDNA. In some embodiments, the probe comprises more than 30 nucleotides from the 5' EST or extended cDNA.

Techniques for labeling the probe are well known and include phosphorylation with polynucleotide kinase, nick translation, *in vitro* transcription, and non radioactive techniques. The cDNAs or genomic DNAs in the library are transferred to a nitrocellulose or nylon filter

and denatured. After blocking of non specific sites, the filter is incubated with the labeled probe for an amount of time sufficient to allow binding of the probe to cDNAs or genomic DNAs containing a sequence capable of hybridizing thereto.

5 By varying the stringency of the hybridization conditions used to identify extended cDNAs or genomic DNAs which hybridize to the detectable probe, extended cDNAs having different levels of homology to the probe can be identified and isolated as described below.

10 1. Identification of Extended cDNA or Genomic cDNA Sequences Having a High Degree of Homology to the Labeled Probe

To identify extended cDNAs or genomic DNAs having a high degree of homology to the probe sequence, the melting temperature of the probe may be calculated using the following formulas:

15 For probes between 14 and 70 nucleotides in length the melting temperature (T_m) is calculated using the formula: $T_m = 81.5 + 16.6(\log [Na^+]) + 0.41(\text{fraction G+C}) - (600/N)$ where N is the length of the probe.

If the hybridization is carried out in a solution containing formamide, the melting temperature may be calculated using the equation $T_m = 81.5 + 16.6(\log [Na^+]) + 0.41(\text{fraction G+C}) - (0.63\% \text{ formamide}) - (600/N)$ where N is the length of the probe.

20 Prehybridization may be carried out in 6X SSC, 5X Denhardt's reagent, 0.5% SDS, 100 μ g denatured fragmented salmon sperm DNA or 6X SSC, 5X Denhardt's reagent, 0.5% SDS, 100 μ g denatured fragmented salmon sperm DNA, 50% formamide. The formulas for SSC and Denhardt's solutions are listed in Sambrook *et al.*, *supra*.

25 Hybridization is conducted by adding the detectable probe to the prehybridization solutions listed above. Where the probe comprises double stranded DNA, it is denatured before addition to the hybridization solution. The filter is contacted with the hybridization solution for a sufficient period of time to allow the probe to hybridize to extended cDNAs or genomic DNAs containing sequences complementary thereto or homologous thereto. For probes over 200 nucleotides in length, the hybridization may be carried out at 15-25°C below the T_m . For shorter probes, such as oligonucleotide probes, the hybridization may be
30 conducted at 15-25°C below the T_m . Preferably, for hybridizations in 6X SSC, the

hybridization is conducted at approximately 68°C. Preferably, for hybridizations in 50% formamide containing solutions, the hybridization is conducted at approximately 42°C.

All of the foregoing hybridizations would be considered to be under "stringent" conditions.

5 Following hybridization, the filter is washed in 2X SSC, 0.1% SDS at room temperature for 15 minutes. The filter is then washed with 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour. Thereafter, the solution is washed at the hybridization temperature in 0.1X SSC, 0.5% SDS. A final wash is conducted in 0.1X SSC at room temperature.

10 Extended cDNAs, nucleic acids homologous to extended cDNAs or 5' ESTs, or genomic DNAs which have hybridized to the probe are identified by autoradiography or other conventional techniques.

15 2. Obtention of Extended cDNA or Genomic cDNA Sequences Having Lower Degrees of Homology to the Labeled Probe

 The above procedure may be modified to identify extended cDNAs, nucleic acids homologous to extended cDNAs, or genomic DNAs having decreasing levels of homology to the probe sequence. For example, to obtain extended cDNAs, nucleic acids homologous to extended cDNAs, or genomic DNAs of decreasing homology to the detectable probe, less
20 stringent conditions may be used. For example, the hybridization temperature may be decreased in increments of 5°C from 68°C to 42°C in a hybridization buffer having a sodium concentration of approximately 1M. Following hybridization, the filter may be washed with 2X SSC, 0.5% SDS at the temperature of hybridization. These conditions are considered to be "moderate" conditions above 50°C and "low" conditions below 50°C.

25 Alternatively, the hybridization may be carried out in buffers, such as 6X SSC, containing formamide at a temperature of 42°C. In this case, the concentration of formamide in the hybridization buffer may be reduced in 5% increments from 50% to 0% to identify clones having decreasing levels of homology to the probe. Following hybridization, the filter may be washed with 6X SSC, 0.5% SDS at 50°C. These conditions are considered to be
30 "moderate" conditions above 25% formamide and "low" conditions below 25% formamide.

Extended cDNAs, nucleic acids homologous to extended cDNAs, or genomic DNAs which have hybridized to the probe are identified by autoradiography.

5 3. Determination of the Degree of Homology Between the Obtained Extended cDNAs and the Labeled Probe

10 If it is desired to obtain nucleic acids homologous to extended cDNAs, such as allelic variants thereof or nucleic acids encoding proteins related to the proteins encoded by the extended cDNAs, the level of homology between the hybridized nucleic acid and the extended cDNA or 5' EST used as the probe may be further determined using BLAST2N; parameters may be adapted depending on the sequence length and degree of homology studied. To determine the level of homology between the hybridized nucleic acid and the extended cDNA or 5'EST from which the probe was derived, the nucleotide sequences of the hybridized nucleic acid and the extended cDNA or 5'EST from which the probe was derived are compared. For example, using the above methods, nucleic acids having at least 95%
15 nucleic acid homology to the extended cDNA or 5'EST from which the probe was derived may be obtained and identified. Similarly, by using progressively less stringent hybridization conditions one can obtain and identify nucleic acids having at least 90%, at least 85%, at least 80% or at least 75% homology to the extended cDNA or 5'EST from which the probe was derived.

20 To determine whether a clone encodes a protein having a given amount of homology to the protein encoded by the extended cDNA or 5' EST, the amino acid sequence encoded by the extended cDNA or 5' EST is compared to the amino acid sequence encoded by the hybridizing nucleic acid. Homology is determined to exist when an amino acid sequence in the extended cDNA or 5' EST is closely related to an amino acid sequence in the hybridizing
25 nucleic acid. A sequence is closely related when it is identical to that of the extended cDNA or 5' EST or when it contains one or more amino acid substitutions therein in which amino acids having similar characteristics have been substituted for one another. Using the above methods and algorithms such as FASTA with parameters depending on the sequence length and degree of homology studied, one can obtain nucleic acids encoding proteins having at
30 least 95%, at least 90%, at least 85%, at least 80% or at least 75% homology to the proteins encoded by the extended cDNA or 5'EST from which the probe was derived.

In addition to the above described methods, other protocols are available to obtain extended cDNAs using 5' ESTs as outlined in the following paragraphs.

Extended cDNAs may be prepared by obtaining mRNA from the tissue, cell, or organism of interest using mRNA preparation procedures utilizing polyA selection procedures or other techniques known to those skilled in the art. A first primer capable of hybridizing to the polyA tail of the mRNA is hybridized to the mRNA and a reverse transcription reaction is performed to generate a first cDNA strand.

The first cDNA strand is hybridized to a second primer containing at least 10 consecutive nucleotides of the sequences of SEQ ID NOs 38-270. Preferably, the primer comprises at least 12, 15, or 17 consecutive nucleotides from the sequences of SEQ ID NOs 38-270. More preferably, the primer comprises 20 to 30 consecutive nucleotides from the sequences of SEQ ID NOs 38-270. In some embodiments, the primer comprises more than 30 nucleotides from the sequences of SEQ ID NOs 38-270. If it is desired to obtain extended cDNAs containing the full protein coding sequence, including the authentic translation initiation site, the second primer used contains sequences located upstream of the translation initiation site. The second primer is extended to generate a second cDNA strand complementary to the first cDNA strand. Alternatively, RT-PCR may be performed as described above using primers from both ends of the cDNA to be obtained.

Extended cDNAs containing 5' fragments of the mRNA may be prepared by hybridizing an mRNA comprising the sequence of the 5'EST for which an extended cDNA is desired with a primer comprising at least 10 consecutive nucleotides of the sequences complementary to the 5'EST and reverse transcribing the hybridized primer to make a first cDNA strand from the mRNAs. Preferably, the primer comprises at least 12, 15, or 17 consecutive nucleotides from the 5'EST. More preferably, the primer comprises 20 to 30 consecutive nucleotides from the 5'EST.

Thereafter, a second cDNA strand complementary to the first cDNA strand is synthesized. The second cDNA strand may be made by hybridizing a primer complementary to sequences in the first cDNA strand to the first cDNA strand and extending the primer to generate the second cDNA strand.

The double stranded extended cDNAs made using the methods described above are isolated and cloned. The extended cDNAs may be cloned into vectors such as plasmids or

viral vectors capable of replicating in an appropriate host cell. For example, the host cell may be a bacterial, mammalian, avian, or insect cell.

Techniques for isolating mRNA, reverse transcribing a primer hybridized to mRNA to generate a first cDNA strand, extending a primer to make a second cDNA strand
5 complementary to the first cDNA strand, isolating the double stranded cDNA and cloning the double stranded cDNA are well known to those skilled in the art and are described in *Current Protocols in Molecular Biology*, John Wiley and Sons, Inc. 1997 and Sambrook *et al.*, *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989, the entire disclosures of which are incorporated herein by reference.

10 Alternatively, procedures such as the one described in Example 29 may be used for obtaining full length cDNAs or extended cDNAs. In this approach, full length or extended cDNAs are prepared from mRNA and cloned into double stranded phagemids as follows. The cDNA library in the double stranded phagemids is then rendered single stranded by treatment with an endonuclease, such as the Gene II product of the phage F1, and an
15 exonuclease (Chang *et al.*, *Gene* 127:95-8, 1993). A biotinylated oligonucleotide comprising the sequence of a 5' EST, or a fragment containing at least 10 nucleotides thereof, is hybridized to the single stranded phagemids. Preferably, the fragment comprises at least 12, 15, or 17 consecutive nucleotides from the 5' EST. More preferably, the fragment comprises 20-30 consecutive nucleotides from the 5' EST. In some procedures, the fragment may
20 comprise more than 30 consecutive nucleotides from the 5' EST.

Hybrids between the biotinylated oligonucleotide and phagemids having inserts containing the 5' EST sequence are isolated by incubating the hybrids with streptavidin coated paramagnetic beads and retrieving the beads with a magnet (Fry *et al.*, *Biotechniques*, 13: 124-131, 1992). Thereafter, the resulting phagemids containing the 5' EST sequence are
25 released from the beads and converted into double stranded DNA using a primer specific for the 5' EST sequence. Alternatively, protocols such as the Gene Trapper kit (Gibco BRL) may be used. The resulting double stranded DNA is transformed into bacteria. Extended cDNAs containing the 5' EST sequence are identified by colony PCR or colony hybridization.

30 Using any of the above described methods in section III, a plurality of extended cDNAs containing full length protein coding sequences or sequences encoding only the

mature protein remaining after the signal peptide is cleaved off may be provided as cDNA libraries for subsequent evaluation of the encoded proteins or use in diagnostic assays as described below.

5 **IV. Expression of Proteins Encoded by Extended cDNAs Isolated Using 5' ESTs**

Extended cDNAs containing the full protein coding sequences of their corresponding mRNAs or portions thereof, such as cDNAs encoding the mature protein, may be used to express the encoded secreted proteins or portions thereof as described in Example 30 below. If desired, the extended cDNAs may contain the sequences encoding the signal peptide to
10 facilitate secretion of the expressed protein. It will be appreciated that a plurality of extended cDNAs containing the full protein coding sequences or portions thereof may be simultaneously cloned into expression vectors to create an expression library for analysis of the encoded proteins as described below.

15 **EXAMPLE 30**

Expression of the Proteins Encoded by the Genes Corresponding
to 5'ESTS or Portions Thereof

To express the proteins encoded by the genes corresponding to 5' ESTs (or portions thereof), full length cDNAs containing the entire protein coding region or extended cDNAs
20 containing sequences adjacent to the 5' ESTs (or portions thereof) are obtained as described in Examples 27-29 and cloned into a suitable expression vector. If desired, the nucleic acids may contain the sequences encoding the signal peptide to facilitate secretion of the expressed protein. The nucleic acids inserted into the expression vectors may also contain sequences upstream of the sequences encoding the signal peptide, such as sequences which regulate
25 expression levels or sequences which confer tissue specific expression.

The nucleic acid encoding the protein or polypeptide to be expressed is operably linked to a promoter in an expression vector using conventional cloning technology. The expression vector may be any of the mammalian, yeast, insect or bacterial expression systems known in the art. Commercially available vectors and expression systems are available from a
30 variety of suppliers including Genetics Institute (Cambridge, MA), Stratagene (La Jolla, California), Promega (Madison, Wisconsin), and Invitrogen (San Diego, California). If desired, to enhance expression and facilitate proper protein folding, the codon context and

codon pairing of the sequence may be optimized for the particular expression organism in which the expression vector is introduced, as explained by Hatfield, *et al.*, U.S. Patent No. 5,082,767, incorporated herein by this reference.

5 The cDNA cloned into the expression vector may encode the entire protein (*i.e.* the signal peptide and the mature protein), the mature protein (*i.e.* the protein created by cleaving the signal peptide off), only the signal peptide or any other portion thereof.

The following is provided as one exemplary method to express the proteins encoded by the extended cDNAs corresponding to the 5' ESTs or the nucleic acids described above. First, the methionine initiation codon for the gene and the polyA signal of the gene are identified. If the nucleic acid encoding the polypeptide to be expressed lacks a methionine to serve as the initiation site, an initiating methionine can be introduced next to the first codon of the nucleic acid using conventional techniques. Similarly, if the extended cDNA lacks a polyA signal, this sequence can be added to the construct by, for example, splicing out the polyA signal from pSG5 (Stratagene) using BglII and SalI restriction endonuclease enzymes and incorporating it into the mammalian expression vector pXT1 (Stratagene). pXT1 contains the LTRs and a portion of the *gag* gene from Moloney Murine Leukemia Virus. The position of the LTRs in the construct allow efficient stable transfection. The vector includes the Herpes Simplex thymidine kinase promoter and the selectable neomycin gene. The extended cDNA or portion thereof encoding the polypeptide to be expressed is obtained by PCR from the bacterial vector using oligonucleotide primers complementary to the extended cDNA or portion thereof and containing restriction endonuclease sequences for Pst I incorporated into the 5' primer and BglII at the 5' end of the corresponding cDNA 3' primer, taking care to ensure that the extended cDNA is positioned with the poly A signal. The purified fragment obtained from the resulting PCR reaction is digested with PstI, blunt ended with an exonuclease, digested with Bgl II, purified and ligated to pXT1 containing a poly A signal and prepared for this ligation (blunt/BglII).

25 The ligated product is transfected into mouse NIH 3T3 cells using Lipofectin (Life Technologies, Inc., Grand Island, New York) under conditions outlined in the product specification. Positive transfectants are selected after growing the transfected cells in 600 µg/ml G418 (Sigma, St. Louis, Missouri). Preferably the expressed protein is released into the culture medium, thereby facilitating purification.

Alternatively, the extended cDNAs may be cloned into pED6dpc2 as described above. The resulting pED6dpc2 constructs may be transfected into a suitable host cell, such as COS 1 cells. Methotrexate resistant cells are selected and expanded. Preferably, the protein expressed from the extended cDNA is released into the culture medium thereby facilitating purification.

Proteins in the culture medium are separated by gel electrophoresis. If desired, the proteins may be ammonium sulfate precipitated or separated based on size or charge prior to electrophoresis.

As a control, the expression vector lacking a cDNA insert is introduced into host cells or organisms and the proteins in the medium are harvested. The secreted proteins present in the medium are detected using techniques familiar to those skilled in the art such as Coomassie blue or silver staining or using antibodies against the protein encoded by the extended cDNA.

Antibodies capable of specifically recognizing the protein of interest may be generated using synthetic 15-mer peptides having a sequence encoded by the appropriate 5' EST, extended cDNA, or portion thereof. The synthetic peptides are injected into mice to generate antibody to the polypeptide encoded by the 5' EST, extended cDNA, or portion thereof.

Secreted proteins from the host cells or organisms containing an expression vector which contains the extended cDNA derived from a 5' EST or a portion thereof are compared to those from the control cells or organism. The presence of a band in the medium from the cells containing the expression vector which is absent in the medium from the control cells indicates that the extended cDNA encodes a secreted protein. Generally, the band corresponding to the protein encoded by the extended cDNA will have a mobility near that expected based on the number of amino acids in the open reading frame of the extended cDNA. However, the band may have a mobility different than that expected as a result of modifications such as glycosylation, ubiquitination, or enzymatic cleavage.

Alternatively, if the protein expressed from the above expression vectors does not contain sequences directing its secretion, the proteins expressed from host cells containing an expression vector with an insert encoding a secreted protein or portion thereof can be compared to the proteins expressed in control host cells containing the expression vector without an insert. The presence of a band in samples from cells containing the expression

vector with an insert which is absent in samples from cells containing the expression vector without an insert indicates that the desired protein or portion thereof is being expressed. Generally, the band will have the mobility expected for the secreted protein or portion thereof. However, the band may have a mobility different than that expected as a result of
5 modifications such as glycosylation, ubiquitination, or enzymatic cleavage.

The protein encoded by the extended cDNA may be purified using standard immunochromatography techniques. In such procedures, a solution containing the secreted protein, such as the culture medium or a cell extract, is applied to a column having antibodies
10 against the secreted protein attached to the chromatography matrix. The secreted protein is allowed to bind the immunochromatography column. Thereafter, the column is washed to remove non-specifically bound proteins. The specifically bound secreted protein is then released from the column and recovered using standard techniques.

If antibody production is not possible, the extended cDNA sequence or portion thereof may be incorporated into expression vectors designed for use in purification schemes
15 employing chimeric polypeptides. In such strategies, the coding sequence of the extended cDNA or portion thereof is inserted in frame with the gene encoding the other half of the chimera. The other half of the chimera may be β -globin or a nickel binding polypeptide. A chromatography matrix having antibody to β -globin or nickel attached thereto is then used to purify the chimeric protein. Protease cleavage sites may be engineered between the β -globin
20 gene or the nickel binding polypeptide and the extended cDNA or portion thereof. Thus, the two polypeptides of the chimera may be separated from one another by protease digestion.

One useful expression vector for generating β -globin chimerics is pSG5 (Stratagene), which encodes rabbit β -globin. Intron II of the rabbit β -globin gene facilitates splicing of the expressed transcript, and the polyadenylation signal incorporated into the construct increases
25 the level of expression. These techniques as described are well known to those skilled in the art of molecular biology. Standard methods are published in methods texts such as Davis *et al.*, (*Basic Methods in Molecular Biology*, Davis, DIBNER, and BATTEY, ed., Elsevier Press, NY, 1986) and many of the methods are available from Stratagene, Life Technologies, Inc., or Promega. Polypeptide may additionally be produced from the construct using *in vitro*
30 translation systems such as the *In vitro* ExpressTM Translation Kit (Stratagene).

Following expression and purification of the secreted proteins encoded by the 5' ESTs, extended cDNAs, or fragments thereof, the purified proteins may be tested for the ability to bind to the surface of various cell types as described in Example 31 below. It will be appreciated that a plurality of proteins expressed from these cDNAs may be included in a panel of proteins to be simultaneously evaluated for the activities specifically described below, as well as other biological roles for which assays for determining activity are available.

EXAMPLE 31

Analysis of Secreted Proteins to Determine Whether they Bind to the Cell Surface

The proteins encoded by the 5' ESTs, extended cDNAs, or fragments thereof are cloned into expression vectors such as those described in Example 30. The proteins are purified by size, charge, immunochromatography or other techniques familiar to those skilled in the art. Following purification, the proteins are labeled using techniques known to those skilled in the art. The labeled proteins are incubated with cells or cell lines derived from a variety of organs or tissues to allow the proteins to bind to any receptor present on the cell surface. Following the incubation, the cells are washed to remove non-specifically bound protein. The labeled proteins are detected by autoradiography. Alternatively, unlabeled proteins may be incubated with the cells and detected with antibodies having a detectable label, such as a fluorescent molecule, attached thereto.

Specificity of cell surface binding may be analyzed by conducting a competition analysis in which various amounts of unlabeled protein are incubated along with the labeled protein. The amount of labeled protein bound to the cell surface decreases as the amount of competitive unlabeled protein increases. As a control, various amounts of an unlabeled protein unrelated to the labeled protein is included in some binding reactions. The amount of labeled protein bound to the cell surface does not decrease in binding reactions containing increasing amounts of unrelated unlabeled protein, indicating that the protein encoded by the cDNA binds specifically to the cell surface.

As discussed above, secreted proteins have been shown to have a number of important physiological effects and, consequently, represent a valuable therapeutic resource. The secreted proteins encoded by the extended cDNAs or portions thereof made according to

Examples 27-29 may be evaluated to determine their physiological activities as described below.

EXAMPLE 32

5 Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof for Cytokine,
Cell Proliferation or Cell Differentiation Activity

As discussed above, secreted proteins may act as cytokines or may affect cellular proliferation or differentiation. Many protein factors discovered to date, including all known cytokines, have exhibited activity in one or more factor dependent cell proliferation assays, and hence the assays serve as a convenient confirmation of cytokine activity. The activity of a protein encoded by the extended cDNAs is evidenced by any one of a number of routine factor dependent cell proliferation assays for cell lines including, without limitation, 32D, DA2, DA1G, T10, B9, B9/11, BaF3, MC9/G, M⁺ (preB M⁺), 2E8, RB5, DA1, 123, T1165, HT2, CTLL2, TF-1, Mo7c and CMK. The proteins encoded by the above extended cDNAs or portions thereof may be evaluated for their ability to regulate T cell or thymocyte proliferation in assays such as those described above or in the following references, which are incorporated herein by reference: *Current Protocols in Immunology*, Ed. by Coligan *et al.*, Greene Publishing Associates and Wiley-Interscience; Takai *et al. J. Immunol.* 137:3494-3500, 1986., Bertagnolli *et al., J. Immunol.* 145:1706-1712, 1990., Bertagnolli *et al., Cell. Immunol.* 133:327-341, 1991; Bertagnolli, *et al., J. Immunol.* 149:3778-3783, 1992; Bowman *et al., J. Immunol.* 152:1756-1761, 1994.

In addition, numerous assays for cytokine production and/or the proliferation of spleen cells, lymph node cells and thymocytes are known. These include the techniques disclosed in *Current Protocols in Immunology*, *supra* 1:3.12.1-3.12.14; and Schreiber In *Current Protocols in Immunology*, *supra* 1 : 6.8.1-6.8.8.

The proteins encoded by the cDNAs may also be assayed for the ability to regulate the proliferation and differentiation of hematopoietic or lymphopoietic cells. Many assays for such activity are familiar to those skilled in the art, including the assays in the following references, which are incorporated herein by reference: Bottomly *et al.*, In *Current Protocols in Immunology*, *supra* 1 : 6.3.1-6.3.12.; deVries *et al., J. Exp. Med.* 173:1205-1211, 1991; Moreau *et al., Nature* 36:690-692, 1988; Greenberger *et al., Proc. Natl. Acad. Sci. U.S.A.*

80:2931-2938, 1983; Nordan, R., In *Current Protocols in Immunology*, *supra* 1 : 6.6.1-6.6.5; Smith et al., *Proc. Natl. Acad. Sci. U.S.A.* 83:1857-1861, 1986; Bennett et al., in *Current Protocols in Immunology supra* 1 : 6.15.1; Ciarletta et al., In *Current Protocols in Immunology supra* 1 : 6.13.1.

5 The proteins encoded by the cDNAs may also be assayed for their ability to regulate T-cell responses to antigens. Many assays for such activity are familiar to those skilled in the art, including the assays described in the following references, which are incorporated herein by reference: Chapter 3 (*In Vitro* Assays for Mouse Lymphocyte Function), Chapter 6 (Cytokines and Their Cellular Receptors) and Chapter 7, (Immunologic Studies in Humans)
10 in *Current Protocols in Immunology supra*; Weinberger et al., *Proc. Natl. Acad. Sci. USA* 77:6091-6095, 1980; Weinberger et al., *Eur. J. Immun.* 11:405-411, 1981; Takai et al., *J. Immunol.* 137:3494-3500, 1986; Takai et al., *J. Immunol.* 140:508-512, 1988.

15 Those proteins which exhibit cytokine, cell proliferation, or cell differentiation activity may then be formulated as pharmaceuticals and used to treat clinical conditions in which induction of cell proliferation or differentiation is beneficial. Alternatively, as described in more detail below, genes encoding these proteins or nucleic acids regulating the expression of these proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

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EXAMPLE 33

Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof for Activity as Immune System Regulators

25 The proteins encoded by the cDNAs may also be evaluated for their effects as immune regulators. For example, the proteins may be evaluated for their activity to influence thymocyte or splenocyte cytotoxicity. Numerous assays for such activity are familiar to those skilled in the art including the assays described in the following references, which are incorporated herein by reference: Chapter 3 (*In Vitro* Assays for Mouse Lymphocyte Function 3.1-3.19) and Chapter 7 (Immunologic studies in Humans) in *Current Protocols in Immunology*, Coligan et al., Eds, Greene Publishing Associates and Wiley-Interscience;
30 Herrmann et al., *Proc. Natl. Acad. Sci. USA* 78:2488-2492, 1981; Herrmann et al., *J.*

Immunol. 128:1968-1974, 1982; Handa *et al.*, *J. Immunol.* 135:1564-1572, 1985; Takai *et al.*, *J. Immunol.* 137:3494-3500, 1986; Takai *et al.*, *J. Immunol.* 140:508-512, 1988; Bowman *et al.*, *J. Virology* 61:1992-1998; Bertagnolli *et al.*, *Cell. Immunol.* 133:327-341, 1991; Brown *et al.*, *J. Immunol.* 153:3079-3092, 1994.

5 The proteins encoded by the cDNAs may also be evaluated for their effects on T-cell dependent immunoglobulin responses and isotype switching. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Maliszewski, *J. Immunol.* 144:3028-3033, 1990; Mond *et al.* in *Current Protocols in Immunology*, 1 : 3.8.1-3.8.16, *supra*.

10 The proteins encoded by the cDNAs may also be evaluated for their effect on immune effector cells, including their effect on Th1 cells and cytotoxic lymphocytes. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Chapter 3 (*In Vitro* Assays for Mouse Lymphocyte Function 3.1-3.19) and Chapter 7 (Immunologic Studies in Humans) in *Current Protocols in Immunology*, *supra*; Takai *et al.*, *J. Immunol.* 137:3494-3500, 1986; Takai *et al.*, *J. Immunol.* 140:508-512, 1988; Bertagnolli *et al.*, *J. Immunol.* 149:3778-3783, 1992.

15 The proteins encoded by the cDNAs may also be evaluated for their effect on dendritic cell mediated activation of naive T-cells. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Guery *et al.*, *J. Immunol.* 134:536-544, 1995; Inaba *et al.*, *J. Exp. Med.* 173:549-559, 1991; Macatonia *et al.*, *J. Immunol.* 154:5071-5079, 1995; Porgador *et al.*, *J. Exp. Med.* 182:255-260, 1995; Nair *et al.*, *J. Virol.* 67:4062-4069, 1993; Huang *et al.*, *Science* 264:961-965, 1994; Macatonia *et al.*, *J. Exp. Med.* 169:1255-1264, 1989; Bhardwaj *et al.*, *Journal of Clinical Investigation* 94:797-807, 1994; and Inaba *et al.*, *J. Exp. Med.* 172:631-640, 1990.

20 The proteins encoded by the cDNAs may also be evaluated for their influence on the lifetime of lymphocytes. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Darzynkiewicz *et al.*, *Cytometry* 13:795-808, 1992; Gorczyca *et al.*, *Leukemia* 7:659-670, 1993; Gorczyca *et al.*, *Cancer Res.* 53:1945-1951, 1993; Itoh *et al.*, *Cell* 66:233-

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243, 1991; Zacharchuk, *J. Immunol.* 145:4037-4045, 1990; Zamai *et al.*, *Cytometry* 14:891-897, 1993; Gorczyca *et al.*, *Int. J. Oncol.* 1:639-648, 1992.

The proteins encoded by the cDNAs may also be evaluated for their influence on early steps of T-cell commitment and development. Numerous assays for such activity are familiar to those skilled in the art, including without limitation the assays disclosed in the following references, which are incorporated herein by references: Antica *et al.*, *Blood* 84:111-117, 1994; Fine *et al.*, *Cell. Immunol.* 155:111-122, 1994; Galy *et al.*, *Blood* 85:2770-2778, 1995; Toki *et al.*, *Proc. Nat. Acad. Sci. USA* 88:7548-7551, 1991.

Those proteins which exhibit activity as immune system regulators activity may then be formulated as pharmaceuticals and used to treat clinical conditions in which regulation of immune activity is beneficial. For example, the protein may be useful in the treatment of various immune deficiencies and disorders (including severe combined immunodeficiency), e.g., in regulating (up or down) growth and proliferation of T and/or B lymphocytes, as well as effecting the cytolytic activity of NK cells and other cell populations. These immune deficiencies may be genetic or be caused by viral (e.g., HIV) as well as bacterial or fungal infections, or may result from autoimmune disorders. More specifically, infectious diseases caused by viral, bacterial, fungal or other infection may be treatable using a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention, including infections by HIV, hepatitis viruses, herpesviruses, mycobacteria, *Leishmania* spp., *Plasmodium* and various fungal infections such as candidiasis. Of course, in this regard, a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also be useful where a boost to the immune system generally may be desirable, i.e., in the treatment of cancer.

Alternatively, proteins encoded by extended cDNAs derived from the 5' ESTs of the present invention may be used in treatment of autoimmune disorders including, for example, connective tissue disease, multiple sclerosis, systemic lupus erythematosus, rheumatoid arthritis, autoimmune pulmonary inflammation, Guillain-Barre syndrome, autoimmune thyroiditis, insulin dependent diabetes mellitus, myasthenia gravis, graft-versus-host disease and autoimmune inflammatory eye disease. Such a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also be useful in the treatment of allergic reactions and conditions, such as asthma (particularly allergic asthma) or other respiratory problems. Other conditions, in which immune suppression is desired (including,

for example, organ transplantation), may also be treatable using a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention.

Using the proteins of the invention it may also be possible to regulate immune responses either up or down.

5 Down regulation may involve inhibiting or blocking an immune response already in progress or may involve preventing the induction of an immune response. The functions of activated T-cells may be inhibited by suppressing T cell responses or by inducing specific tolerance in T cells, or both. Immunosuppression of T cell responses is generally an active non-antigen-specific process which requires continuous exposure of the T cells to the
10 suppressive agent. Tolerance, which involves inducing non-responsiveness or anergy in T cells, is distinguishable from immunosuppression in that it is generally antigen-specific and persists after the end of exposure to the tolerizing agent. Operationally, tolerance can be demonstrated by the lack of a T cell response upon reexposure to specific antigen in the absence of the tolerizing agent.

15 Down regulating or preventing one or more antigen functions (including without limitation B lymphocyte antigen functions, such as, for example, B7 costimulation), e.g., preventing high level lymphokine synthesis by activated T cells, will be useful in situations of tissue, skin and organ transplantation and in graft-versus-host disease (GVHD). For example, blockage of T cell function should result in reduced tissue destruction in tissue
20 transplantation. Typically, in tissue transplants, rejection of the transplant is initiated through its recognition as foreign by T cells, followed by an immune reaction that destroys the transplant. The administration of a molecule which inhibits or blocks interaction of a B7 lymphocyte antigen with its natural ligand(s) on immune cells (such as a soluble, monomeric form of a peptide having B7-2 activity alone or in conjunction with a monomeric form of a
25 peptide having an activity of another B lymphocyte antigen (e.g., B7-1, B7-3) or blocking antibody), prior to transplantation, can lead to the binding of the molecule to the natural ligand(s) on the immune cells without transmitting the corresponding costimulatory signal. Blocking B lymphocyte antigen function in this matter prevents cytokine synthesis by immune cells, such as T cells, and thus acts as an immunosuppressant. Moreover, the lack of
30 costimulation may also be sufficient to anergize the T cells, thereby inducing tolerance in a subject. Induction of long-term tolerance by B lymphocyte antigen-blocking reagents may

avoid the necessity of repeated administration of these blocking reagents. To achieve sufficient immunosuppression or tolerance in a subject, it may also be necessary to block the function of a combination of B lymphocyte antigens.

5 The efficacy of particular blocking reagents in preventing organ transplant rejection or GVHD can be assessed using animal models that are predictive of efficacy in humans. Examples of appropriate systems which can be used include allogeneic cardiac grafts in rats and xenogeneic pancreatic islet cell grafts in mice, both of which have been used to examine the immunosuppressive effects of CTLA4Ig fusion proteins *in vivo* as described in Lenschow *et al.*, *Science* 257:789-792, 1992 and Turka *et al.*, *Proc. Natl. Acad. Sci USA*, 89:11102-10 11105, 1992. In addition, murine models of GVHD (see Paul ed., *Fundamental Immunology*, Raven Press, New York, 1989, pp. 846-847) can be used to determine the effect of blocking B lymphocyte antigen function *in vivo* on the development of that disease.

Blocking antigen function may also be therapeutically useful for treating autoimmune diseases. Many autoimmune disorders are the result of inappropriate activation of T cells that are reactive against self tissue and which promote the production of cytokines and autoantibodies involved in the pathology of the diseases. Preventing the activation of autoreactive T cells may reduce or eliminate disease symptoms. Administration of reagents which block costimulation of T cells by disrupting receptor/ligand interactions of B lymphocyte antigens can be used to inhibit T cell activation and prevent production of autoantibodies or T cell-derived cytokines which potentially involved in the disease process. 15 Additionally, blocking reagents may induce antigen-specific tolerance of autoreactive T cells which could lead to long-term relief from the disease. The efficacy of blocking reagents in preventing or alleviating autoimmune disorders can be determined using a number of well-characterized animal models of human autoimmune diseases. Examples include murine experimental autoimmune encephalitis, systemic lupus erythmatosis in MRL/pr/pr mice or NZB hybrid mice, murine autoimmune collagen arthritis, diabetes mellitus in OD mice and BB rats, and murine experimental myasthenia gravis (see Paul ed., *supra*, pp. 840-856). 20 25

Upregulation of an antigen function (preferably a B lymphocyte antigen function), as a means of up regulating immune responses, may also be useful in therapy. Upregulation of immune responses may involve either enhancing an existing immune response or eliciting an initial immune response as shown by the following examples. For instance, enhancing an 30

immune response through stimulating B lymphocyte antigen function may be useful in cases of viral infection. In addition, systemic viral diseases such as influenza, the common cold, and encephalitis might be alleviated by the administration of stimulatory form of B lymphocyte antigens systemically.

5 Alternatively, antiviral immune responses may be enhanced in an infected patient by removing T cells from the patient, costimulating the T cells *in vitro* with viral antigen-pulsed APCs either expressing a peptide encoded by extended cDNAs derived from the 5' ESTs of the present invention or together with a stimulatory form of a soluble peptide encoded by extended cDNAs derived from the 5' ESTs of the present invention and reintroducing the *in*
10 *vitro* primed T cells into the patient. The infected cells would now be capable of delivering a costimulatory signal to T cells *in vivo*, thereby activating the T cells.

 In another application, upregulation or enhancement of antigen function (preferably B lymphocyte antigen function) may be useful in the induction of tumor immunity. Tumor cells (e.g., sarcoma, melanoma, lymphoma, leukemia, neuroblastoma, carcinoma) transfected with
15 a nucleic acid encoding at least one peptide encoded by extended cDNAs derived from the 5' ESTs of the present invention can be administered to a subject to overcome tumor-specific tolerance in the subject. If desired, the tumor cell can be transfected to express a combination of peptides. For example, tumor cells obtained from a patient can be transfected *ex vivo* with an expression vector directing the expression of a peptide having B7-2-like activity alone, or
20 in conjunction with a peptide having B7-1-like activity and/or B7-3-like activity. The transfected tumor cells are returned to the patient to result in expression of the peptides on the surface of the transfected cell. Alternatively, gene therapy techniques can be used to target a tumor cell for transfection *in vivo*.

 The presence of the peptide encoded by extended cDNAs derived from the 5' ESTs
25 of the present invention having the activity of a B lymphocyte antigen(s) on the surface of the tumor cell provides the necessary costimulation signal to T cells to induce a T cell mediated immune response against the transfected tumor cells. In addition, tumor cells which lack or which fail to reexpress sufficient amounts of MHC class I or MHC class II molecules can be transfected with nucleic acids encoding all or a portion of (e.g., a cytoplasmic-domain truncated portion) of an MHC class I α chain and β_2 microglobulin or an MHC class II α
30 chain and an MHC class II β chain to thereby express MHC class I or MHC class II proteins

on the cell surface, respectively. Expression of the appropriate MHC class I or class II molecules in conjunction with a peptide having the activity of a B lymphocyte antigen (e.g., B7-1, B7-2, B7-3) induces a T cell mediated immune response against the transfected tumor cell. Optionally, a gene encoding an antisense construct which blocks expression of an MHC class II associated protein, such as the invariant chain, can also be cotransfected with a DNA encoding a peptide having the activity of a B lymphocyte antigen to promote presentation of tumor associated antigens and induce tumor specific immunity. Thus, the induction of a T cell mediated immune response in a human subject may be sufficient to overcome tumor-specific tolerance in the subject. Alternatively, as described in more detail below, genes encoding these immune system regulator proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 34

Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof for Hematopoiesis Regulating Activity

The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for their hematopoiesis regulating activity. For example, the effect of the proteins on embryonic stem cell differentiation may be evaluated. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Johansson *et al.* *Cell. Biol.* 15:141-151, 1995; Keller *et al.*, *Mol. Cell. Biol.* 13:473-486, 1993; McClanahan *et al.*, *Blood* 81:2903-2915, 1993.

The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for their influence on the lifetime of stem cells and stem cell differentiation. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Freshney, Methylcellulose Colony Forming Assays, in *Culture of Hematopoietic Cells.*, Freshney, *et al.* Eds. pp. 265-268, Wiley-Liss, Inc., New York, NY. 1994; Hirayama *et al.*, *Proc. Natl. Acad. Sci. USA* 89:5907-5911, 1992; McNiece and Briddell, in *Culture of Hematopoietic Cells*, *supra*; Neben *et al.*, *Exp. Hematol.* 22:353-359, 1994; Ploemacher and Cobblestone In

Culture of Hematopoietic Cells, supra 1-21, Spooncer *et al*, in *Culture of Hematopoietic Cells*, supra 163-179 and Sutherland in *Culture of Hematopoietic Cells*, supra. 139-162.

Those proteins which exhibit hematopoiesis regulatory activity may then be formulated as pharmaceuticals and used to treat clinical conditions in which regulation of hematopoiesis is beneficial, such as in the treatment of myeloid or lymphoid cell deficiencies. Involvement in regulating hematopoiesis is indicated even by marginal biological activity in support of colony forming cells or of factor-dependent cell lines. For example, proteins supporting the growth and proliferation of erythroid progenitor cells alone or in combination with other cytokines, indicates utility, for example, in treating various anemias or for use in conjunction with irradiation/chemotherapy to stimulate the production of erythroid precursors and/or erythroid cells. Proteins supporting the growth and proliferation of myeloid cells such as granulocytes and monocytes/macrophages (*i.e.*, traditional CSF activity) may be useful, for example, in conjunction with chemotherapy to prevent or treat consequent myelosuppression. Proteins supporting the growth and proliferation of megakaryocytes and consequently of platelets allows prevention or treatment of various platelet disorders such as thrombocytopenia, and generally may be used in place of or complementary to platelet transfusions. Proteins supporting the growth and proliferation of hematopoietic stem cells which are capable of maturing to any and all of the above-mentioned hematopoietic cells may therefore find therapeutic utility in various stem cell disorders (such as those usually treated with transplantation, including, without limitation, aplastic anemia and paroxysmal nocturnal hemoglobinuria), as well as in repopulating the stem cell compartment post irradiation/chemotherapy, either *in vivo* or *ex vivo* (*i.e.*, in conjunction with bone marrow transplantation or with peripheral progenitor cell transplantation (homologous or heterologous)) as normal cells or genetically manipulated for gene therapy. Alternatively, as described in more detail below, genes encoding hematopoiesis regulating activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 35

Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof
for Regulation of Tissue Growth

5 The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for their effect on tissue growth. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in International Patent Publication No. WO95/16035, International Patent Publication No. WO95/05846 and International Patent Publication No. WO91/07491, which are incorporated herein by reference.

10 Assays for wound healing activity include, without limitation, those described in: Winter, *Epidermal Wound Healing*, pps. 71-112, Maibach and Rovee, eds., Year Book Medical Publishers, Inc., Chicago, as modified by Eaglstein and Mertz, *J. Invest. Dermatol.* 71:382-84, 1978, which are incorporated herein by reference.

15 Those proteins which are involved in the regulation of tissue growth may then be formulated as pharmaceuticals and used to treat clinical conditions in which regulation of tissue growth is beneficial. For example, a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention also may have utility in compositions used for bone, cartilage, tendon, ligament and/or nerve tissue growth or regeneration, as well as for wound healing and tissue repair and replacement, and in the treatment of burns, incisions and ulcers.

20 A protein encoded by extended cDNAs derived from the 5' ESTs of the present invention, which induces cartilage and/or bone growth in circumstances where bone is not normally formed, has application in the healing of bone fractures and cartilage damage or defects in humans and other animals. Such a preparation employing a protein of the invention may have prophylactic use in closed as well as open fracture reduction and also in the improved fixation of artificial joints. *De novo* bone synthesis induced by an osteogenic agent
25 contributes to the repair of congenital, trauma induced, or oncologic resection induced craniofacial defects, and also is useful in cosmetic plastic surgery.

30 A protein of this invention may also be used in the treatment of periodontal disease, and in other tooth repair processes. Such agents may provide an environment to attract bone-forming cells, stimulate growth of bone-forming cells or induce differentiation of bone-forming cell progenitors. A protein of the invention may also be useful in the treatment of osteoporosis or osteoarthritis, such as through stimulation of bone and/or cartilage repair or

by blocking inflammation or processes of tissue destruction (collagenase activity, osteoclast activity, etc.) mediated by inflammatory processes.

Another category of tissue regeneration activity that may be attributable to the protein encoded by extended cDNAs derived from the 5' ESTs of the present invention is tendon/ligament formation. A protein encoded by extended cDNAs derived from the 5' ESTs of the present invention, which induces tendon/ligament-like tissue or other tissue formation in circumstances where such tissue is not normally formed, has application in the healing of tendon or ligament tears, deformities and other tendon or ligament defects in humans and other animals. Such a preparation employing a tendon/ligament-like tissue inducing protein may have prophylactic use in preventing damage to tendon or ligament tissue, as well as use in the improved fixation of tendon or ligament to bone or other tissues, and in repairing defects to tendon or ligament tissue. *De novo* tendon/ligament-like tissue formation induced by a composition encoded by extended cDNAs derived from the 5' ESTs of the present invention contributes to the repair of tendon or ligaments defects of congenital, traumatic or other origin and is also useful in cosmetic plastic surgery for attachment or repair of tendons or ligaments. The compositions encoded by extended cDNAs derived from the 5' ESTs of the present invention may provide an environment to attract tendon- or ligament-forming cells, stimulate growth of tendon- or ligament-forming cells, induce differentiation of progenitors of tendon- or ligament-forming cells, or induce growth of tendon/ligament cells or progenitors *ex vivo* for return *in vivo* to effect tissue repair. The compositions of the invention may also be useful in the treatment of tendinitis, carpal tunnel syndrome and other tendon or ligament defects. The compositions may also include an appropriate matrix and/or sequestering agent as a carrier as is well known in the art.

The protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also be useful for proliferation of neural cells and for regeneration of nerve and brain tissue, *i.e.*, for the treatment of central and peripheral nervous system diseases and neuropathies, as well as mechanical and traumatic disorders, which involve degeneration, death or trauma to neural cells or nerve tissue. More specifically, a protein may be used in the treatment of diseases of the peripheral nervous system, such as peripheral nerve injuries, peripheral neuropathy and localized neuropathies, and central nervous system diseases, such as Alzheimer's, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and

Shy-Drager syndrome. Further conditions which may be treated in accordance with the present invention include mechanical and traumatic disorders, such as spinal cord disorders, head trauma and cerebrovascular diseases such as stroke. Peripheral neuropathies resulting from chemotherapy or other medical therapies may also be treatable using a protein of the invention.

Proteins of the invention may also be useful to promote better or faster closure of non-healing wounds, including without limitation pressure ulcers, ulcers associated with vascular insufficiency, surgical and traumatic wounds, and the like.

It is expected that a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also exhibit activity for generation or regeneration of other tissues, such as organs (including, for example, pancreas, liver, intestine, kidney, skin, endothelium) muscle (smooth, skeletal or cardiac) and vascular (including vascular endothelium) tissue, or for promoting the growth of cells comprising such tissues. Part of the desired effects may be by inhibition or modulation of fibrotic scarring to allow normal tissue to generate. A protein of the invention may also exhibit angiogenic activity.

A protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also be useful for gut protection or regeneration and treatment of lung or liver fibrosis, reperfusion injury in various tissues, and conditions resulting from systemic cytokine damage.

A protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also be useful for promoting or inhibiting differentiation of tissues described above from precursor tissues or cells; or for inhibiting the growth of tissues described above.

Alternatively, as described in more detail below, genes encoding tissue growth regulating activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 36Assaying the Proteins Expressed from Extended cDNAs or PortionsThereof for Regulation of Reproductive Hormones

5 The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for their ability to regulate reproductive hormones, such as follicle stimulating hormone. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Vale *et al.*, *Endocrinol.* 91:562-572, 1972; Ling *et al.*, *Nature* 321:779-782, 1986; Vale *et al.*, *Nature* 321:776-779, 1986; Mason *et al.*, *Nature* 318:659-663, 1985; Forage *et al.*,
10 *Proc. Natl. Acad. Sci. USA* 83:3091-3095, 1986, Chapter 6.12 in *Current Protocols in Immunology*, Coligan *et al.* Eds. Greene Publishing Associates and Wiley-Interscience ; Taub *et al.*, *J. Clin. Invest.* 95:1370-1376, 1995; Lind *et al.*, *APMIS* 103:140-146, 1995; Muller *et al.*, *Eur. J. Immunol.* 25:1744-1748; Gruber *et al.*, *J. Immunol.* 152:5860-5867, 1994; Johnston *et al.*, *J Immunol.* 153:1762-1768, 1994.

15 Those proteins which exhibit activity as reproductive hormones or regulators of cell movement may then be formulated as pharmaceuticals and used to treat clinical conditions in which regulation of reproductive hormones are beneficial. For example, a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may also exhibit activin- or inhibin-related activities. Inhibins are characterized by their ability to inhibit the release of
20 follicle stimulating hormone (FSH), while activins are characterized by their ability to stimulate the release of FSH. Thus, a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention, alone or in heterodimers with a member of the inhibin α family, may be useful as a contraceptive based on the ability of inhibins to decrease fertility in female mammals and decrease spermatogenesis in male mammals. Administration of
25 sufficient amounts of other inhibins can induce infertility in these mammals. Alternatively, the protein of the invention, as a homodimer or as a heterodimer with other protein subunits of the inhibin-B group, may be useful as a fertility inducing therapeutic, based upon the ability of activin molecules in stimulating FSH release from cells of the anterior pituitary. See, for example, United States Patent 4,798,885, the disclosure of which is incorporated herein by
30 reference. A protein of the invention may also be useful for advancement of the onset of

fertility in sexually immature mammals, so as to increase the lifetime reproductive performance of domestic animals such as cows, sheep and pigs.

Alternatively, as described in more detail below, genes encoding reproductive hormone regulating activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 37

Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof for Chemotactic/Chemokinetic Activity

The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for chemotactic/chemokinetic activity. For example, a protein encoded by extended cDNAs derived from the 5' ESTs of the present invention may have chemotactic or chemokinetic activity (e.g., act as a chemokine) for mammalian cells, including, for example, monocytes, fibroblasts, neutrophils, T-cells, mast cells, eosinophils, epithelial and/or endothelial cells. Chemotactic and chemokinetic proteins can be used to mobilize or attract a desired cell population to a desired site of action. Chemotactic or chemokinetic proteins provide particular advantages in treatment of wounds and other trauma to tissues, as well as in treatment of localized infections. For example, attraction of lymphocytes, monocytes or neutrophils to tumors or sites of infection may result in improved immune responses against the tumor or infecting agent.

A protein or peptide has chemotactic activity for a particular cell population if it can stimulate, directly or indirectly, the directed orientation or movement of such cell population. Preferably, the protein or peptide has the ability to directly stimulate directed movement of cells. Whether a particular protein has chemotactic activity for a population of cells can be readily determined by employing such protein or peptide in any known assay for cell chemotaxis.

The activity of a protein of the invention may, among other means, be measured by the following methods:

Assays for chemotactic activity (which will identify proteins that induce or prevent chemotaxis) consist of assays that measure the ability of a protein to induce the migration of

cells across a membrane as well as the ability of a protein to induce the adhesion of one cell population to another cell population. Suitable assays for movement and adhesion include, without limitation, those described in: *Current Protocols in Immunology*, Ed by Coligan, Kruisbeek, Margulies, Shevach and Strober, Pub. Greene Publishing Associates and Wiley-Interscience, Chapter 6.12: 6.12.1-6.12.28; Taub *et al.*, *J. Clin. Invest.* 95:1370-1376, 1995; Lind *et al.*, *APMIS* 103:140-146, 1995; Mueller *et al.*, *Eur. J. Immunol.* 25:1744-1748; Gruber *et al.*, *J. Immunol.* 152:5860-5867, 1994; Johnston *et al.* *J. Immunol.*, 153:1762-1768, 1994.

EXAMPLE 38

Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof for Regulation of Blood Clotting

The proteins encoded by the extended cDNAs or portions thereof may also be evaluated for their effects on blood clotting. Numerous assays for such activity are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Linet *et al.*, *J. Clin. Pharmacol.* 26:131-140, 1986; Burdick *et al.*, *Thrombosis Res.* 45:413-419, 1987; Humphrey *et al.*, *Fibrinolysis* 5:71-79, 1991; Schaub, *Prostaglandins* 35:467-474, 1988.

Those proteins which are involved in the regulation of blood clotting may then be formulated as pharmaceuticals and used to treat clinical conditions in which regulation of blood clotting is beneficial. For example, a protein of the invention may also exhibit hemostatic or thrombolytic activity. As a result, such a protein is expected to be useful in treatment of various coagulations disorders (including hereditary disorders, such as hemophilias) or to enhance coagulation and other hemostatic events in treating wounds resulting from trauma, surgery or other causes. A protein of the invention may also be useful for dissolving or inhibiting formation of thromboses and for treatment and prevention of conditions resulting therefrom (such as infarction of cardiac and central nervous system vessels (e.g., stroke)). Alternatively, as described in more detail below, genes encoding blood clotting activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 39

Assaying the Proteins Expressed from Extended cDNAs or
Portions Thereof for Involvement in Receptor/Ligand Interactions

5 The proteins encoded by the extended cDNAs or a portion thereof may also be evaluated for their involvement in receptor/ligand interactions. Numerous assays for such involvement are familiar to those skilled in the art, including the assays disclosed in the following references, which are incorporated herein by reference: Chapter 7. 7.28.1-7.28.22 in *Current Protocols in Immunology*, Coligan *et al.* Eds. Greene Publishing Associates and Wiley-Interscience; Takai *et al.*, *Proc. Natl. Acad. Sci. USA* 84:6864-6868, 1987; Bierer *et al.*, *J. Exp. Med.* 168:1145-1156, 1988; Rosenstein *et al.*, *J. Exp. Med.* 169:149-160, 1989; 10 Stoltzenberg *et al.*, *J. Immunol. Methods* 175:59-68, 1994; Stitt *et al.*, *Cell* 80:661-670, 1995; Gyuris *et al.*, *Cell* 75:791-803, 1993.

For example, the proteins encoded by extended cDNAs derived from the 5' ESTs of the present invention may also demonstrate activity as receptors, receptor ligands or inhibitors 15 or agonists of receptor/ligand interactions. Examples of such receptors and ligands include, without limitation, cytokine receptors and their ligands, receptor kinases and their ligands, receptor phosphatases and their ligands, receptors involved in cell-cell interactions and their ligands (including without limitation, cellular adhesion molecules (such as selectins, integrins and their ligands) and receptor/ligand pairs involved in antigen presentation, antigen 20 recognition and development of cellular and humoral immune responses). Receptors and ligands are also useful for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interaction. A protein encoded by extended cDNAs derived from the 5' ESTs of the present invention (including, without limitation, fragments of receptors and ligands) may themselves be useful as inhibitors of receptor/ligand interactions. Alternatively, 25 as described in more detail below, genes encoding proteins involved in receptor/ligand interactions or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 40**Assaying the Proteins Expressed from Extended cDNAs or Portions Thereof
for Anti-Inflammatory Activity**

5 The proteins encoded by the extended cDNAs or a portion thereof may also be evaluated for anti-inflammatory activity. The anti-inflammatory activity may be achieved by providing a stimulus to cells involved in the inflammatory response, by inhibiting or promoting cell-cell interactions (such as, for example, cell adhesion), by inhibiting or promoting chemotaxis of cells involved in the inflammatory process, inhibiting or promoting cell extravasation, or by stimulating or suppressing production of other factors which more directly inhibit or promote an inflammatory response. Proteins exhibiting such activities can be used to treat inflammatory conditions including chronic or acute conditions, including without limitation inflammation associated with infection (such as septic shock, sepsis or systemic inflammatory response syndrome), ischemia-reperfusion injury, endotoxin lethality, arthritis, complement-mediated hyperacute rejection, nephritis, cytokine- or chemokine- induced lung injury, inflammatory bowel disease, Crohn's disease or resulting from over production of cytokines such as TNF or IL-1. Proteins of the invention may also be useful to treat anaphylaxis and hypersensitivity to an antigenic substance or material. Alternatively, as described in more detail below, genes encoding anti-inflammatory activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 41**Assaying the Proteins Expressed from Extended cDNAs or
Portions Thereof for Tumor Inhibition Activity**

25 The proteins encoded by the extended cDNAs or a portion thereof may also be evaluated for tumor inhibition activity. In addition to the activities described above for immunological treatment or prevention of tumors, a protein of the invention may exhibit other anti-tumor activities. A protein may inhibit tumor growth directly or indirectly (such as, for example, via ADCC). A protein may exhibit its tumor inhibitory activity by acting on tumor tissue or tumor precursor tissue, by inhibiting formation of tissues necessary to support tumor growth (such as, for example, by inhibiting angiogenesis), by causing production of other

factors, agents or cell types which inhibit tumor growth, or by suppressing, eliminating or inhibiting factors, agents or cell types which promote tumor growth. Alternatively, as described in more detail below, genes tumor inhibition activity proteins or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to
5 increase or decrease the expression of the proteins as desired.

A protein of the invention may also exhibit one or more of the following additional activities or effects: inhibiting the growth, infection or function of, or killing, infectious agents, including, without limitation, bacteria, viruses, fungi and other parasites; effecting
10 (suppressing or enhancing) bodily characteristics, including, without limitation, height, weight, hair color, eye color, skin, fat to lean ratio or other tissue pigmentation, or organ or body part size or shape (such as, for example, breast augmentation or diminution, change in bone form or shape); effecting biorhythms or circadian cycles or rhythms; effecting the fertility of male or female subjects; effecting the metabolism, catabolism, anabolism,
15 processing, utilization, storage or elimination of dietary fat, lipid, protein, carbohydrate, vitamins, minerals, cofactors or other nutritional factors or component(s); effecting behavioral characteristics, including, without limitation, appetite, libido, stress, cognition (including cognitive disorders), depression (including depressive disorders) and violent behaviors; providing analgesic effects or other pain reducing effects; promoting differentiation and
20 growth of embryonic stem cells in lineages other than hematopoietic lineages; hormonal or endocrine activity; in the case of enzymes, correcting deficiencies of the enzyme and treating deficiency-related diseases; treatment of hyperproliferative disorders (such as, for example, psoriasis); immunoglobulin-like activity (such as, for example, the ability to bind antigens or complement); and the ability to act as an antigen in a vaccine composition to raise an immune
25 response against such protein or another material or entity which is cross-reactive with such protein. Alternatively, as described in more detail below, genes encoding proteins involved in any of the above mentioned activities or nucleic acids regulating the expression of such proteins may be introduced into appropriate host cells to increase or decrease the expression of the proteins as desired.

EXAMPLE 42**Identification of Proteins which Interact with
Polypeptides Encoded by Extended cDNAs**

Proteins which interact with the polypeptides encoded by cDNAs derived from the 5' ESTs or fragments thereof, such as receptor proteins, may be identified using two hybrid systems such as the Matchmaker Two Hybrid System 2 (Catalog No. K1604-1, Clontech). As described in the manual accompanying the kit which is incorporated herein by reference, the the cDNAs derived from 5' ESTs, or fragments thereof, are inserted into an expression vector such that they are in frame with DNA encoding the DNA binding domain of the yeast transcriptional activator GAL4. cDNAs in a cDNA library which encode proteins which might interact with the polypeptides encoded by the extended cDNAs or portions thereof are inserted into a second expression vector such that they are in frame with DNA encoding the activation domain of GAL4. The two expression plasmids are transformed into yeast and the yeast are plated on selection medium which selects for expression of selectable markers on each of the expression vectors as well as GAL4 dependent expression of the HIS3 gene. Transformants capable of growing on medium lacking histidine are screened for GAL4 dependent lacZ expression. Those cells which are positive in both the histidine selection and the lacZ assay contain plasmids encoding proteins which interact with the polypeptide encoded by the extended cDNAs or portions thereof.

Alternatively, the system described in Lustig *et al.*, *Methods in Enzymology* 283: 83-99, 1997, and in U.S. Patent No. 5,654,150, the disclosure of which is incorporated herein by reference, may be used for identifying molecules which interact with the polypeptides encoded by extended cDNAs. In such systems, *in vitro* transcription reactions are performed on a pool of vectors containing extended cDNA inserts cloned downstream of a promoter which drives *in vitro* transcription. The resulting pools of mRNAs are introduced into *Xenopus laevis* oocytes. The oocytes are then assayed for a desired activity.

Alternatively, the pooled *in vitro* transcription products produced as described above may be translated *in vitro*. The pooled *in vitro* translation products can be assayed for a desired activity or for interaction with a known polypeptide.

Proteins or other molecules interacting with polypeptides encoded by extended cDNAs can be found by a variety of additional techniques. In one method, affinity

columns containing the polypeptide encoded by the extended cDNA or a portion thereof can be constructed. In some versions, of this method the affinity column contains chimeric proteins in which the protein encoded by the extended cDNA or a portion thereof is fused to glutathione S-transferase. A mixture of cellular proteins or pool of expressed proteins as described above and is applied to the affinity column. Proteins interacting with the polypeptide attached to the column can then be isolated and analyzed on 2-D electrophoresis gel as described in Ramunsen *et al.*, *Electrophoresis* 18:588-598, 1997, the disclosure of which is incorporated herein by reference. Alternatively, the proteins retained on the affinity column can be purified by electrophoresis based methods and sequenced. The same method can be used to isolate antibodies, to screen phage display products, or to screen phage display human antibodies.

Proteins interacting with polypeptides encoded by extended cDNAs or portions thereof can also be screened by using an Optical Biosensor as described in Edwards and Leatherbarrow, *Analytical Biochemistry* 246:1-6, 1997, the disclosure of which is incorporated herein by reference. The main advantage of the method is that it allows the determination of the association rate between the protein and other interacting molecules. Thus, it is possible to specifically select interacting molecules with a high or low association rate. Typically a target molecule is linked to the sensor surface (through a carboxymethyl dextran matrix) and a sample of test molecules is placed in contact with the target molecules. The binding of a test molecule to the target molecule causes a change in the refractive index and/ or thickness. This change is detected by the Biosensor provided it occurs in the evanescent field (which extend a few hundred nanometers from the sensor surface). In these screening assays, the target molecule can be one of the polypeptides encoded by extended cDNAs or a portion thereof and the test sample can be a collection of proteins extracted from tissues or cells, a pool of expressed proteins, combinatorial peptide and/ or chemical libraries, or phage displayed peptides. The tissues or cells from which the test proteins are extracted can originate from any species.

In other methods, a target protein is immobilized and the test population is a collection of unique polypeptides encoded by the extended cDNAs or portions thereof.

To study the interaction of the proteins encoded by the extended cDNAs or portions thereof with drugs, the microdialysis coupled to HPLC method described by Wang *et al.*, *Chromatographia* 44:205-208, 1997 or the affinity capillary electrophoresis method described by Busch *et al.*, *J. Chromatogr.* 777:311-328, 1997, the disclosures of which are incorporated herein by reference can be used.

It will be appreciated by those skilled in the art that the proteins expressed from the extended cDNAs or portions may be assayed for numerous activities in addition to those specifically enumerated above. For example, the expressed proteins may be evaluated for applications involving control and regulation of inflammation, tumor proliferation or metastasis, infection, or other clinical conditions. In addition, the proteins expressed from the extended cDNAs or portions thereof may be useful as nutritional agents or cosmetic agents.

The proteins expressed from the cDNAs or portions thereof may be used to generate antibodies capable of specifically binding to the expressed protein or fragments thereof as described in Example 40 below. The antibodies may capable of binding a full length protein encoded by a cDNA derived from a 5' EST, a mature protein (*i.e.* the protein generated by cleavage of the signal peptide) encoded by a cDNA derived from a 5' EST, or a signal peptide encoded by a cDNA derived from a 5' EST. Alternatively, the antibodies may be capable of binding fragments of at least 10 amino acids of the proteins encoded by the above cDNAs. In some embodiments, the antibodies may be capable of binding fragments of at least 15 amino acids of the proteins encoded by the above cDNAs. In other embodiments, the antibodies may be capable of binding fragments of at least 25 amino acids of the proteins expressed from the extended cDNAs which comprise at least 25 amino acids of the proteins encoded by the above cDNAs. In further embodiments, the antibodies may be capable of binding fragments of at least 40 amino acids of the proteins encoded by the above cDNAs.

EXAMPLE 43

Production of an Antibody to a Human Protein

Substantially pure protein or polypeptide is isolated from the transfected or transformed cells as described in Example 30. The concentration of protein in the final preparation is adjusted, for example, by concentration on an Amicon filter device, to the

level of a few $\mu\text{g/ml}$. Monoclonal or polyclonal antibody to the protein can then be prepared as follows:

1. Monoclonal Antibody Production by Hybridoma Fusion

5 Monoclonal antibody to epitopes of any of the peptides identified and isolated as described can be prepared from murine hybridomas according to the classical method of Kohler, and Milstein, *Nature* 256:495, 1975 or derivative methods thereof. Briefly, a mouse is repetitively inoculated with a few micrograms of the selected protein or peptides derived therefrom over a period of a few weeks. The mouse is then sacrificed,
10 and the antibody producing cells of the spleen isolated. The spleen cells are fused by means of polyethylene glycol with mouse myeloma cells, and the excess unfused cells destroyed by growth of the system on selective media comprising aminopterin (HAT media). The successfully fused cells are diluted and aliquots of the dilution placed in wells of a microtiter plate where growth of the culture is continued. Antibody-producing
15 clones are identified by detection of antibody in the supernatant fluid of the wells by immunoassay procedures, such as ELISA, as originally described by Engvall, *Meth. Enzymol.* 70:419, 1980, the disclosure of which is incorporated herein by reference and derivative methods thereof. Selected positive clones can be expanded and their monoclonal antibody product harvested for use. Detailed procedures for monoclonal
20 antibody production are described in Davis *et al.* in *Basic Methods in Molecular Biology* Elsevier, New York. Section 21-2, the disclosure of which is incorporated herein by reference.

2. Polyclonal Antibody Production by Immunization

25 Polyclonal antiserum containing antibodies to heterogenous epitopes of a single protein can be prepared by immunizing suitable animals with the expressed protein or peptides derived therefrom, which can be unmodified or modified to enhance immunogenicity. Effective polyclonal antibody production is affected by many factors related both to the antigen and the host species. For example, small molecules tend to be less
30 immunogenic than others and may require the use of carriers and adjuvant. Also, host animals response vary depending on site of inoculations and doses, with both inadequate or

excessive doses of antigen resulting in low titer antisera. Small doses (ng level) of antigen administered at multiple intradermal sites appears to be most reliable. An effective immunization protocol for rabbits can be found in Vaitukaitis. *et al*, *J. Clin. Endocrinol. Metab.* 33:988-991 (1971), the disclosure of which is incorporated herein by reference..

5 Booster injections can be given at regular intervals, and antiserum harvested when antibody titer thereof, as determined semi-quantitatively, for example, by double immunodiffusion in agar against known concentrations of the antigen, begins to fall. See, for example, Ouchterlony, *et al.*, Chap. 19 in: *Handbook of Experimental Immunology* D. Wier (ed) Blackwell (1973), the disclosure of which is incorporated herein by reference. Plateau
10 concentration of antibody is usually in the range of 0.1 to 0.2 mg/ml of serum (about 12 μ M). Affinity of the antisera for the antigen is determined by preparing competitive binding curves, as described, for example, by Fisher, D., Chap. 42 in: *Manual of Clinical Immunology*, 2d Ed. (Rose and Friedman, Eds.) Amer. Soc. For Microbiol., Washington, D.C. (1980), the disclosure of which is incorporated herein by reference..

15 Antibody preparations prepared according to either protocol are useful in quantitative immunoassays which determine concentrations of antigen-bearing substances in biological samples; they are also used semi-quantitatively or qualitatively to identify the presence of antigen in a biological sample. The antibodies may also be used in therapeutic compositions for killing cells expressing the protein or reducing the levels of
20 the protein in the body.

V. Use of 5' ESTs or Sequences Obtainable Therefrom or Portions Thereof as Reagents

 The 5' ESTs of the present invention (or cDNAs or genomic DNAs obtainable
25 therefrom) may be used as reagents in isolation procedures, diagnostic assays, and forensic procedures. For example, sequences from the 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom) may be detectably labeled and used as probes to isolate other sequences capable of hybridizing to them. In addition, sequences from 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom) may be used to design PCR primers to be used in isolation,
30 diagnostic, or forensic procedures.

1. Use of 5' ESTs or Sequences Obtainable Therefrom or Portions Thereof in Isolation,
Diagnostic and Forensic Procedures

EXAMPLE 44

Preparation of PCR Primers and Amplification of DNA

5 The 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom) may be
used to prepare PCR primers for a variety of applications, including isolation procedures for
cloning nucleic acids capable of hybridizing to such sequences, diagnostic techniques and
forensic techniques. The PCR primers are at least 10 bases, and preferably at least 12, 15, or
10 17 bases in length. More preferably, the PCR primers are at least 20-30 bases in length. In
some embodiments, the PCR primers may be more than 30 bases in length. It is preferred
that the primer pairs have approximately the same G/C ratio, so that melting temperatures are
approximately the same. A variety of PCR techniques are familiar to those skilled in the art.
For a review of PCR technology, see *Molecular Cloning to Genetic Engineering*, White Ed.
15 *in Methods in Molecular Biology* 67: Humana Press, Totowa 1997, the disclosure of which
is incorporated herein by reference. In each of these PCR procedures, PCR primers on either
side of the nucleic acid sequences to be amplified are added to a suitably prepared nucleic acid
sample along with dNTPs and a thermostable polymerase such as Taq polymerase, Pfu
polymerase, or Vent polymerase. The nucleic acid in the sample is denatured and the PCR
20 primers are specifically hybridized to complementary nucleic acid sequences in the sample.
The hybridized primers are extended. Thereafter, another cycle of denaturation,
hybridization, and extension is initiated. The cycles are repeated multiple times to produce an
amplified fragment containing the nucleic acid sequence between the primer sites.

EXAMPLE 45

Use of 5' ESTs as Probes

25 Probes derived from 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom),
including full length cDNAs or genomic sequences, may be labeled with detectable labels
familiar to those skilled in the art, including radioisotopes and non-radioactive labels, to
30 provide a detectable probe. The detectable probe may be single stranded or double stranded
and may be made using techniques known in the art, including *in vitro* transcription, nick

translation, or kinase reactions. A nucleic acid sample containing a sequence capable of hybridizing to the labeled probe is contacted with the labeled probe. If the nucleic acid in the sample is double stranded, it may be denatured prior to contacting the probe. In some applications, the nucleic acid sample may be immobilized on a surface such as a nitrocellulose or nylon membrane. The nucleic acid sample may comprise nucleic acids obtained from a variety of sources, including genomic DNA, cDNA libraries, RNA, or tissue samples.

Procedures used to detect the presence of nucleic acids capable of hybridizing to the detectable probe include well known techniques such as Southern blotting, Northern blotting, dot blotting, colony hybridization, and plaque hybridization. In some applications, the nucleic acid capable of hybridizing to the labeled probe may be cloned into vectors such as expression vectors, sequencing vectors, or *in vitro* transcription vectors to facilitate the characterization and expression of the hybridizing nucleic acids in the sample. For example, such techniques may be used to isolate and clone sequences in a genomic library or cDNA library which are capable of hybridizing to the detectable probe as described in Example 30 above.

PCR primers made as described in Example 44 above may be used in forensic analyses, such as the DNA fingerprinting techniques described in Examples 46-50 below. Such analyses may utilize detectable probes or primers based on the sequences of the the 5' ESTs or of cDNAs or genomic DNAs isolated using the 5' ESTs.

20

EXAMPLE 46

Forensic Matching by DNA Sequencing

In one exemplary method, DNA samples are isolated from forensic specimens of, for example, hair, semen, blood or skin cells by conventional methods. A panel of PCR primers based on a number of the 5' ESTs of Example 25, or cDNAs or genomic DNAs isolated therefrom as described above, is then utilized in accordance with Example 44 to amplify DNA of approximately 100-200 bases in length from the forensic specimen. Corresponding sequences are obtained from a test subject. Each of these identification DNAs is then sequenced using standard techniques, and a simple database comparison determines the differences, if any, between the sequences from the subject and those from the sample. Statistically significant differences between the suspect's DNA sequences and those from the sample conclusively prove a lack of identity. This lack of identity can be proven, for example,

with only one sequence. Identity, on the other hand, should be demonstrated with a large number of sequences, all matching. Preferably, a minimum of 50 statistically identical sequences of 100 bases in length are used to prove identity between the suspect and the sample.

5

EXAMPLE 47

Positive Identification by DNA Sequencing

The technique outlined in the previous example may also be used on a larger scale to provide a unique fingerprint-type identification of any individual. In this technique, primers
10 are prepared from a large number of 5'EST sequences from Example 25, or cDNA or genomic DNA sequences obtainable therefrom. Preferably, 20 to 50 different primers are used. These primers are used to obtain a corresponding number of PCR-generated DNA segments from the individual in question in accordance with Example 44. Each of these DNA segments is sequenced, using the methods set forth in Example 46. The database of
15 sequences generated through this procedure uniquely identifies the individual from whom the sequences were obtained. The same panel of primers may then be used at any later time to absolutely correlate tissue or other biological specimen with that individual.

EXAMPLE 48

20

Southern Blot Forensic Identification

The procedure of Example 47 is repeated to obtain a panel of at least 10 amplified sequences from an individual and a specimen. Preferably, the panel contains at least 50 amplified sequences. More preferably, the panel contains 100 amplified sequences. In some embodiments, the panel contains 200 amplified sequences. This PCR-generated DNA is then
25 digested with one or a combination of, preferably, four base specific restriction enzymes. Such enzymes are commercially available and known to those of skill in the art. After digestion, the resultant gene fragments are size separated in multiple duplicate wells on an agarose gel and transferred to nitrocellulose using Southern blotting techniques well known to those with skill in the art. For a review of Southern blotting see Davis *et al.* (Basic
30 Methods in Molecular Biology, 1986, Elsevier Press. pp 62-65), the disclosure of which is incorporated herein by reference..

A panel of probes based on the sequences of 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom), or fragments thereof of at least 10 bases, are radioactively or colorimetrically labeled using methods known in the art, such as nick translation or end labeling, and hybridized to the Southern blot using techniques known in the art (Davis *et al.*, supra). Preferably, the probe comprises at least 12, 15, or 17 consecutive nucleotides from the 5' EST (or cDNAs or genomic DNAs obtainable therefrom). More preferably, the probe comprises at least 20-30 consecutive nucleotides from the 5' EST (or cDNAs or genomic DNAs obtainable therefrom). In some embodiments, the probe comprises more than 30 nucleotides from the 5' EST (or cDNAs or genomic DNAs obtainable therefrom).

Preferably, at least 5 to 10 of these labeled probes are used, and more preferably at least about 20 or 30 are used to provide a unique pattern. The resultant bands appearing from the hybridization of a large sample of 5' EST (or cDNAs or genomic DNAs obtainable therefrom) will be a unique identifier. Since the restriction enzyme cleavage will be different for every individual, the band pattern on the Southern blot will also be unique. Increasing the number of 5' EST (or cDNAs or genomic DNAs obtainable therefrom) probes will provide a statistically higher level of confidence in the identification since there will be an increased number of sets of bands used for identification.

EXAMPLE 49

Dot Blot Identification Procedure

Another technique for identifying individuals using the 5' EST sequences disclosed herein utilizes a dot blot hybridization technique.

Genomic DNA is isolated from nuclei of subject to be identified. Oligonucleotide probes of approximately 30 bp in length are synthesized that correspond to at least 10, preferably 50 sequences from the 5' ESTs or cDNAs or genomic DNAs obtainable therefrom. The probes are used to hybridize to the genomic DNA through conditions known to those in the art. The oligonucleotides are end labeled with P^{32} using polynucleotide kinase (Pharmacia). Dot Blots are created by spotting the genomic DNA onto nitrocellulose or the like using a vacuum dot blot manifold (BioRad, Richmond California). The nitrocellulose filter containing the genomic sequences is baked or UV linked to the filter, prehybridized and hybridized with labeled probe using techniques known in the art (Davis *et al.*, supra). The ^{32}P

labeled DNA fragments are sequentially hybridized with successively stringent conditions to detect minimal differences between the 30 bp sequence and the DNA. Tetramethylammonium chloride is useful for identifying clones containing small numbers of nucleotide mismatches (Wood *et al.*, *Proc. Natl. Acad. Sci. USA* **82**(6):1585-1588, 1985) which is hereby incorporated by reference. A unique pattern of dots distinguishes one individual from another individual.

5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom) or oligonucleotides containing at least 10 consecutive bases from these sequences can be used as probes in the following alternative fingerprinting technique. Preferably, the probe comprises at least 12, 15, or 17 consecutive nucleotides from the 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom). More preferably, the probe comprises at least 20-30 consecutive nucleotides from the 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom). In some embodiments, the probe comprises more than 30 nucleotides from the 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom).

Preferably, a plurality of probes having sequences from different genes are used in the alternative fingerprinting technique. Example 50 below provides a representative alternative fingerprinting procedure in which the probes are derived from 5'EST.

EXAMPLE 50

Alternative "Fingerprint" Identification Technique

20-mer oligonucleotides are prepared from a large number, e.g. 50, 100, or 200, of 5'EST using commercially available oligonucleotide services such as Genset, Paris, France. Cell samples from the test subject are processed for DNA using techniques well known to those with skill in the art. The nucleic acid is digested with restriction enzymes such as EcoRI and XbaI. Following digestion, samples are applied to wells for electrophoresis. The procedure, as known in the art, may be modified to accommodate polyacrylamide electrophoresis, however in this example, samples containing 5 ug of DNA are loaded into wells and separated on 0.8% agarose gels. The gels are transferred onto nitrocellulose using standard Southern blotting techniques.

10 ng of each of the oligonucleotides are pooled and end-labeled with ³²P. The nitrocellulose is prehybridized with blocking solution and hybridized with the labeled probes.

Following hybridization and washing, the nitrocellulose filter is exposed to X-Omat AR X-ray film. The resulting hybridization pattern will be unique for each individual.

It is additionally contemplated within this example that the number of probe sequences used can be varied for additional accuracy or clarity.

5

The proteins encoded by the extended cDNAs may also be used to generate antibodies as explained in Examples 30 and 43 in order to identify the tissue type or cell species from which a sample is derived as described in example 51.

10

EXAMPLE 51

Identification of Tissue Types or Cell Species by Means of Labeled Tissue Specific Antibodies

15

Identification of specific tissues is accomplished by the visualization of tissue specific antigens by means of antibody preparations according to Examples 30 and 43 which are conjugated, directly or indirectly to a detectable marker. Selected labeled antibody species bind to their specific antigen binding partner in tissue sections, cell suspensions, or in extracts of soluble proteins from a tissue sample to provide a pattern for qualitative or semi-qualitative interpretation.

20

Antisera for these procedures must have a potency exceeding that of the native preparation, and for that reason, antibodies are concentrated to a mg/ml level by isolation of the gamma globulin fraction, for example, by ion-exchange chromatography or by ammonium sulfate fractionation. Also, to provide the most specific antisera, unwanted antibodies, for example to common proteins, must be removed from the gamma globulin fraction, for example by means of insoluble immunoabsorbents, before the antibodies are labeled with the marker. Either monoclonal or heterologous antisera is suitable for either procedure.

25

A. Immunohistochemical techniques

30

Purified, high-titer antibodies, prepared as described above, are conjugated to a detectable marker, as described, for example, by Fudenberg, Chap. 26 in: *Basic and Clinical Immunology*, 3rd Ed. Lange, Los Altos, California, 1980, or Rose, *et al.*, Chap. 12 in: *Methods in Immunodiagnosis*, 2d Ed. John Wiley and Sons, New York (1980), the disclosures of which are incorporated herein by reference.

A fluorescent marker, either fluorescein or rhodamine, is preferred, but antibodies can also be labeled with an enzyme that supports a color producing reaction with a substrate, such as horseradish peroxidase. Markers can be added to tissue-bound antibody in a second step, as described below. Alternatively, the specific antitissue antibodies can be labeled with ferritin or other electron dense particles, and localization of the ferritin coupled antigen-antibody complexes achieved by means of an electron microscope. In yet another approach, the antibodies are radiolabeled, with, for example ^{125}I , and detected by overlaying the antibody treated preparation with photographic emulsion.

Preparations to carry out the procedures can comprise monoclonal or polyclonal antibodies to a single protein or peptide identified as specific to a tissue type, for example, brain tissue, or antibody preparations to several antigenically distinct tissue specific antigens can be used in panels, independently or in mixtures, as required.

Tissue sections and cell suspensions are prepared for immunohistochemical examination according to common histological techniques. Multiple cryostat sections (about 4 μm , unfixed) of the unknown tissue and known control, are mounted and each slide covered with different dilutions of the antibody preparation. Sections of known and unknown tissues should also be treated with preparations to provide a positive control, a negative control, for example, pre-immune sera, and a control for non-specific staining, for example, buffer.

Treated sections are incubated in a humid chamber for 30 min at room temperature, rinsed, then washed in buffer for 30-45 min. Excess fluid is blotted away, and the marker developed.

If the tissue specific antibody was not labeled in the first incubation, it can be labeled at this time in a second antibody-antibody reaction, for example, by adding fluorescein- or enzyme-conjugated antibody against the immunoglobulin class of the antiserum-producing species, for example, fluorescein labeled antibody to mouse IgG. Such labeled sera are commercially available.

The antigen found in the tissues by the above procedure can be quantified by measuring the intensity of color or fluorescence on the tissue section, and calibrating that signal using appropriate standards.

B. Identification of tissue specific soluble proteins

The visualization of tissue specific proteins and identification of unknown tissues from that procedure is carried out using the labeled antibody reagents and detection strategy as described for immunohistochemistry; however the sample is prepared according to an electrophoretic technique to distribute the proteins extracted from the tissue in an orderly array on the basis of molecular weight for detection.

A tissue sample is homogenized using a Virtis apparatus; cell suspensions are disrupted by Dounce homogenization or osmotic lysis, using detergents in either case as required to disrupt cell membranes, as is the practice in the art. Insoluble cell components such as nuclei, microsomes, and membrane fragments are removed by ultracentrifugation, and the soluble protein-containing fraction concentrated if necessary and reserved for analysis.

A sample of the soluble protein solution is resolved into individual protein species by conventional SDS polyacrylamide electrophoresis as described, for example, by Davis, *et al.*, Section 19-2 in: *Basic Methods in Molecular Biology*, Leder ed., Elsevier, New York, 1986, the disclosure of which is incorporated herein by reference, using a range of amounts of polyacrylamide in a set of gels to resolve the entire molecular weight range of proteins to be detected in the sample. A size marker is run in parallel for purposes of estimating molecular weights of the constituent proteins. Sample size for analysis is a convenient volume of from 5 to 55 μ l, and containing from about 1 to 100 μ g protein. An aliquot of each of the resolved proteins is transferred by blotting to a nitrocellulose filter paper, a process that maintains the pattern of resolution. Multiple copies are prepared. The procedure, known as Western Blot Analysis, is well described in Davis, L. *et al.*, *supra* Section 19-3. One set of nitrocellulose blots is stained with Coomassie blue dye to visualize the entire set of proteins for comparison with the antibody bound proteins. The remaining nitrocellulose filters are then incubated with a solution of one or more specific antisera to tissue specific proteins prepared as described in Examples 30 and 43. In this procedure, as in procedure A above, appropriate positive and negative sample and reagent controls are run.

In either procedure A or B, a detectable label can be attached to the primary tissue antigen-primary antibody complex according to various strategies and permutations thereof.

In a straightforward approach, the primary specific antibody can be labeled; alternatively, the unlabeled complex can be bound by a labeled secondary anti-IgG antibody. In other

approaches, either the primary or secondary antibody is conjugated to a biotin molecule, which can, in a subsequent step, bind an avidin conjugated marker. According to yet another strategy, enzyme labeled or radioactive protein A, which has the property of binding to any IgG, is bound in a final step to either the primary or secondary antibody.

5 The visualization of tissue specific antigen binding at levels above those seen in control tissues to one or more tissue specific antibodies, prepared from the gene sequences identified from extended cDNA sequences, can identify tissues of unknown origin, for example, forensic samples, or differentiated tumor tissue that has metastasized to foreign bodily sites.

10 In addition to their applications in forensics and identification, 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom) may be mapped to their chromosomal locations. Example 52 below describes radiation hybrid (RH) mapping of human chromosomal regions using 5'ESTs. Example 53 below describes a representative procedure for mapping an 5' EST to its location on a human chromosome. Example 54 below describes mapping of 5' ESTs on metaphase chromosomes by Fluorescence In Situ Hybridization (FISH). Those skilled in the art will appreciate that the method of Examples 52-54 may also be used to map cDNAs or genomic DNAs obtainable from the 5' ESTs to their chromosomal locations.

2. Use of 5' ESTs or Sequences Obtainable Therefrom or Portions Thereof in Chromosome Mapping

20 **EXAMPLE 52**

Radiation hybrid mapping of 5'ESTs to the human genome

Radiation hybrid (RH) mapping is a somatic cell genetic approach that can be used for high resolution mapping of the human genome. In this approach, cell lines containing one or more human chromosomes are lethally irradiated, breaking each chromosome into fragments whose size depends on the radiation dose. These fragments are rescued by fusion with cultured rodent cells, yielding subclones containing different portions of the human genome. This technique is described by Benham *et al.*, *Genomics* 4:509-517, 1989; and Cox *et al.*, *Science* 250:245-250, 1990, the entire contents of which are hereby incorporated by reference. The random and independent nature of the subclones permits efficient mapping of

any human genome marker. Human DNA isolated from a panel of 80-100 cell lines provides a mapping reagent for ordering 5'EST. In this approach, the frequency of breakage between markers is used to measure distance, allowing construction of fine resolution maps as has been done using conventional ESTs (Schuler *et al.*, *Science* 274:540-546, 1996, hereby
5 incorporated by reference).

RH mapping has been used to generate a high-resolution whole genome radiation hybrid map of human chromosome 17q22-q25.3 across the genes for growth hormone (GH) and thymidine kinase (TK) (Foster *et al.*, *Genomics* 33:185-192, 1996), the region
10 surrounding the Gorlin syndrome gene (Obermayr *et al.*, *Eur. J. Hum. Genet.* 4:242-245, 1996), 60 loci covering the entire short arm of chromosome 12 (Raeymaekers *et al.*, *Genomics* 29:170-178, 1995), the region of human chromosome 22 containing the neurofibromatosis type 2 locus (Frazer *et al.*, *Genomics* 14:574-584, 1992) and 13 loci on the long arm of chromosome 5 (Warrington *et al.*, *Genomics* 11:701-708, 1991).

15 EXAMPLE 53

Mapping of 5'ESTs to Human Chromosomes using PCR techniques

5' ESTs (or cDNAs or genomic DNAs obtainable therefrom) may be assigned to human chromosomes using PCR based methodologies. In such approaches, oligonucleotide primer pairs are designed from the 5' ESTs (or cDNAs or genomic DNAs obtainable
20 therefrom) to minimize the chance of amplifying through an intron. Preferably, the oligonucleotide primers are 18-23 bp in length and are designed for PCR amplification. The creation of PCR primers from known sequences is well known to those with skill in the art. For a review of PCR technology see Erlich in *PCR Technology, Principles and Applications for DNA Amplification*, Freeman and Co., New York, 1992, the disclosure of which is
25 incorporated herein by reference..

The primers are used in polymerase chain reactions (PCR) to amplify templates from total human genomic DNA. PCR conditions are as follows: 60 ng of genomic DNA is used as a template for PCR with 80 ng of each oligonucleotide primer, 0.6 unit of Taq polymerase, and 1 μ Cu of a 32 P-labeled deoxycytidine triphosphate. The PCR is performed in a
30 microplate thermocycler (Techne) under the following conditions: 30 cycles of 94°C, 1.4 min; 55°C, 2 min; and 72°C, 2 min; with a final extension at 72°C for 10 min. The amplified

products are analyzed on a 6% polyacrylamide sequencing gel and visualized by autoradiography. If the length of the resulting PCR product is identical to the distance between the ends of the primer sequences in the extended cDNA from which the primers are derived, then the PCR reaction is repeated with DNA templates from two panels of human-rodent somatic cell hybrids, BIOS PCRable DNA (BIOS Corporation) and NIGMS Human-Rodent Somatic Cell Hybrid Mapping Panel Number 1 (NIGMS, Camden, NJ).

PCR is used to screen a series of somatic cell hybrid cell lines containing defined sets of human chromosomes for the presence of a given 5' EST (or cDNA or genomic DNA obtainable therefrom). DNA is isolated from the somatic hybrids and used as starting templates for PCR reactions using the primer pairs from the 5' EST (or cDNA or genomic DNA obtainable therefrom). Only those somatic cell hybrids with chromosomes containing the human gene corresponding to the 5' EST (or cDNA or genomic DNA obtainable therefrom) will yield an amplified fragment. The 5' EST (or cDNA or genomic DNA obtainable therefrom) are assigned to a chromosome by analysis of the segregation pattern of PCR products from the somatic hybrid DNA templates. The single human chromosome present in all cell hybrids that give rise to an amplified fragment is the chromosome containing that 5'EST (or cDNA or genomic DNA obtainable therefrom). For a review of techniques and analysis of results from somatic cell gene mapping experiments, see Ledbetter *et al.*, *Genomics* 6:475-481, 1990, the disclosure of which is incorporated herein by reference.

EXAMPLE 54

Mapping of Extended 5' ESTs to Chromosomes Using Fluorescence *In Situ* Hybridization

Fluorescence in situ hybridization allows the 5'EST (or cDNA or genomic DNA obtainable therefrom) to be mapped to a particular location on a given chromosome. The chromosomes to be used for fluorescence in situ hybridization techniques may be obtained from a variety of sources including cell cultures, tissues, or whole blood.

In a preferred embodiment, chromosomal localization of an 5'EST (or cDNA or genomic DNA obtainable therefrom) is obtained by FISH as described by Cherif *et al.* (*Proc. Natl. Acad. Sci. U.S.A.*, 87:6639-6643, 1990), the disclosure of which is incorporated herein by reference.. Metaphase chromosomes are prepared from phytohemagglutinin (PHA)-

stimulated blood cell donors. PHA-stimulated lymphocytes from healthy males are cultured for 72 h in RPMI-1640 medium. For synchronization, methotrexate (10 μ M) is added for 17 h, followed by addition of 5-bromodeoxyuridine (5-BrdU, 0.1 mM) for 6 h. Colcemid (1 μ g/ml) is added for the last 15 min before harvesting the cells. Cells are collected, washed in
5 RPMI, incubated with a hypotonic solution of KCl (75 mM) at 37°C for 15 min and fixed in three changes of methanol:acetic acid (3:1). The cell suspension is dropped onto a glass slide and air dried. The 5'EST (or cDNA or genomic DNA obtainable therefrom) is labeled with biotin-16 dUTP by nick translation according to the manufacturer's instructions (Bethesda Research Laboratories, Bethesda, MD), purified using a Sephadex G-50 column (Pharmacia,
10 Upsala, Sweden) and precipitated. Just prior to hybridization, the DNA pellet is dissolved in hybridization buffer (50% formamide, 2 X SSC, 10% dextran sulfate, 1 mg/ml sonicated salmon sperm DNA, pH 7) and the probe is denatured at 70°C for 5-10 min.

Slides kept at -20°C are treated for 1 h at 37°C with RNase A (100 μ g/ml), rinsed three times in 2 X SSC and dehydrated in an ethanol series. Chromosome preparations are
15 denatured in 70% formamide, 2 X SSC for 2 min at 70°C, then dehydrated at 4°C. The slides are treated with proteinase K (10 μ g/100 ml in 20 mM Tris-HCl, 2 mM CaCl₂) at 37°C for 8 min and dehydrated. The hybridization mixture containing the probe is placed on the slide, covered with a coverslip, sealed with rubber cement and incubated overnight in a humid chamber at 37°C. After hybridization and post-hybridization washes, the biotinylated probe is
20 detected by avidin-FITC and amplified with additional layers of biotinylated goat anti-avidin and avidin-FITC. For chromosomal localization, fluorescent R-bands are obtained as previously described (Cherif *et al.*, *supra.*). The slides are observed under a LEICA fluorescence microscope (DMRXA). Chromosomes are counterstained with propidium iodide and the fluorescent signal of the probe appears as two symmetrical yellow-green spots
25 on both chromatids of the fluorescent R-band chromosome (red). Thus, a particular 5'EST (or cDNA or genomic DNA obtainable therefrom) may be localized to a particular cytogenetic R-band on a given chromosome.

Once the 5'EST (or cDNA or genomic DNA obtainable therefrom) have been
30 assigned to particular chromosomes using the techniques described in Examples 52-54 above,

they may be utilized to construct a high resolution map of the chromosomes on which they are located or to identify the chromosomes in a sample.

EXAMPLE 55

5 Use of 5'EST to Construct or Expand Chromosome Maps

Chromosome mapping involves assigning a given unique sequence to a particular chromosome as described above. Once the unique sequence has been mapped to a given chromosome, it is ordered relative to other unique sequences located on the same chromosome. One approach to chromosome mapping utilizes a series of yeast artificial
10 chromosomes (YACs) bearing several thousand long inserts derived from the chromosomes of the organism from which the extended cDNAs (or genomic DNAs obtainable therefrom) are obtained. This approach is described in Nagaraja *et al.*, *Genome Research* 7:210-222, 1997, the disclosure of which is incorporated herein by reference. Briefly, in this approach each chromosome is broken into overlapping pieces which are inserted into the YAC vector.
15 The YAC inserts are screened using PCR or other methods to determine whether they include the 5'EST (or cDNA or genomic DNA obtainable therefrom) whose position is to be determined. Once an insert has been found which includes the 5'EST (or cDNA or genomic DNA obtainable therefrom), the insert can be analyzed by PCR or other methods to determine whether the insert also contains other sequences known to be on the chromosome
20 or in the region from which the 5'EST (or cDNA or genomic DNA obtainable therefrom) was derived. This process can be repeated for each insert in the YAC library to determine the location of each of the extended cDNAs (or genomic DNAs obtainable therefrom) relative to one another and to other known chromosomal markers. In this way, a high resolution map of the distribution of numerous unique markers along each of the organisms chromosomes may
25 be obtained.

As described in Example 56 below extended cDNAs (or genomic DNAs obtainable therefrom) may also be used to identify genes associated with a particular phenotype, such as hereditary disease or drug response.

3. Use of 5'ESTs or Sequences Obtained Therefrom or Fragments Thereof in Gene Identification

EXAMPLE 56

Identification of genes associated with hereditary diseases or drug response

5 This example illustrates an approach useful for the association of 5'ESTs (or cDNA or genomic DNA obtainable therefrom) with particular phenotypic characteristics. In this example, a particular 5'EST (or cDNA or genomic DNA obtainable therefrom) is used as a test probe to associate that 5'EST (or cDNA or genomic DNA obtainable therefrom) with a particular phenotypic characteristic.

10 5'ESTs (or cDNA or genomic DNA obtainable therefrom) are mapped to a particular location on a human chromosome using techniques such as those described in Examples 52 and 53 or other techniques known in the art. A search of Mendelian Inheritance in Man (McKusick in *Mendelian Inheritance in Man* (available on line through Johns Hopkins University Welch Medical Library) reveals the region of the human chromosome which
15 contains the 5'EST (or cDNA or genomic DNA obtainable therefrom) to be a very gene rich region containing several known genes and several diseases or phenotypes for which genes have not been identified. The gene corresponding to this 5'EST (or cDNA or genomic DNA obtainable therefrom) thus becomes an immediate candidate for each of these genetic diseases.

20 Cells from patients with these diseases or phenotypes are isolated and expanded in culture. PCR primers from the 5'EST (or cDNA or genomic DNA obtainable therefrom) are used to screen genomic DNA, mRNA or cDNA obtained from the patients. 5'ESTs (or cDNA or genomic DNA obtainable therefrom) that are not amplified in the patients can be positively associated with a particular disease by further analysis. Alternatively, the PCR
25 analysis may yield fragments of different lengths when the samples are derived from an individual having the phenotype associated with the disease than when the sample is derived from a healthy individual, indicating that the gene containing the 5'EST may be responsible for the genetic disease.

VI. Use of 5'EST (or cDNA or Genomic DNA Obtainable Therefrom) to Construct Vectors

The present 5'ESTs (or cDNA or genomic DNA obtainable therefrom) may also be used to construct secretion vectors capable of directing the secretion of the proteins encoded by genes therein. Such secretion vectors may facilitate the purification or enrichment of the proteins encoded by genes inserted therein by reducing the number of background proteins from which the desired protein must be purified or enriched. Exemplary secretion vectors are described in Example 57 below.

1. Construction of Secretion Vectors

EXAMPLE 57

Construction of Secretion Vectors

The secretion vectors include a promoter capable of directing gene expression in the host cell, tissue, or organism of interest. Such promoters include the Rous Sarcoma Virus promoter, the SV40 promoter, the human cytomegalovirus promoter, and other promoters familiar to those skilled in the art.

A signal sequence from a 5' EST (or cDNAs or genomic DNAs obtainable therefrom) is operably linked to the promoter such that the mRNA transcribed from the promoter will direct the translation of the signal peptide. The host cell, tissue, or organism may be any cell, tissue, or organism which recognizes the signal peptide encoded by the signal sequence in the 5' EST (or cDNA or genomic DNA obtainable therefrom). Suitable hosts include mammalian cells, tissues or organisms, avian cells, tissues, or organisms, insect cells, tissues or organisms, or yeast.

In addition, the secretion vector contains cloning sites for inserting genes encoding the proteins which are to be secreted. The cloning sites facilitate the cloning of the insert gene in frame with the signal sequence such that a fusion protein in which the signal peptide is fused to the protein encoded by the inserted gene is expressed from the mRNA transcribed from the promoter. The signal peptide directs the extracellular secretion of the fusion protein.

The secretion vector may be DNA or RNA and may integrate into the chromosome of the host, be stably maintained as an extrachromosomal replicon in the host, be an artificial chromosome, or be transiently present in the host. Many nucleic acid backbones suitable for

use as secretion vectors are known to those skilled in the art, including retroviral vectors, SV40 vectors, Bovine Papilloma Virus vectors, yeast integrating plasmids, yeast episomal plasmids, yeast artificial chromosomes, human artificial chromosomes, P element vectors, baculovirus vectors, or bacterial plasmids capable of being transiently introduced into the host.

The secretion vector may also contain a polyA signal such that the polyA signal is located downstream of the gene inserted into the secretion vector.

After the gene encoding the protein for which secretion is desired is inserted into the secretion vector, the secretion vector is introduced into the host cell, tissue, or organism using calcium phosphate precipitation, DEAE-Dextran, electroporation, liposome-mediated transfection, viral particles or as naked DNA. The protein encoded by the inserted gene is then purified or enriched from the supernatant using conventional techniques such as ammonium sulfate precipitation, immunoprecipitation, immunochromatography, size exclusion chromatography, ion exchange chromatography, and HPLC. Alternatively, the secreted protein may be in a sufficiently enriched or pure state in the supernatant or growth media of the host to permit it to be used for its intended purpose without further enrichment.

The signal sequences may also be inserted into vectors designed for gene therapy. In such vectors, the signal sequence is operably linked to a promoter such that mRNA transcribed from the promoter encodes the signal peptide. A cloning site is located downstream of the signal sequence such that a gene encoding a protein whose secretion is desired may readily be inserted into the vector and fused to the signal sequence. The vector is introduced into an appropriate host cell. The protein expressed from the promoter is secreted extracellularly, thereby producing a therapeutic effect.

The 5' ESTs may also be used to clone sequences located upstream of the 5' ESTs which are capable of regulating gene expression, including promoter sequences, enhancer sequences, and other upstream sequences which influence transcription or translation levels. Once identified and cloned, these upstream regulatory sequences may be used in expression vectors designed to direct the expression of an inserted gene in a desired spatial, temporal, developmental, or quantitative fashion. Example 58 describes a method for cloning sequences upstream of the extended cDNAs or 5' ESTs.

2. Identification of Upstream Sequences With Promoting or Regulatory Activities

EXAMPLE 58

Use of Extended cDNAs or 5' ESTs to Clone Upstream Sequences from Genomic DNA

Sequences derived from extended cDNAs or 5' ESTs may be used to isolate the promoters of the corresponding genes using chromosome walking techniques. In one chromosome walking technique, which utilizes the GenomeWalker™ kit available from Clontech, five complete genomic DNA samples are each digested with a different restriction enzyme which has a 6 base recognition site and leaves a blunt end. Following digestion, oligonucleotide adapters are ligated to each end of the resulting genomic DNA fragments.

For each of the five genomic DNA libraries, a first PCR reaction is performed according to the manufacturer's instructions (which are incorporated herein by reference) using an outer adaptor primer provided in the kit and an outer gene specific primer. The gene specific primer should be selected to be specific for the extended cDNA or 5' EST of interest and should have a melting temperature, length, and location in the extended cDNA or 5' EST which is consistent with its use in PCR reactions. Each first PCR reaction contains 5 ng of genomic DNA, 5 µl of 10X Tth reaction buffer, 0.2 mM of each dNTP, 0.2 µM each of outer adaptor primer and outer gene specific primer, 1.1 mM of Mg(OAc)₂, and 1 µl of the Tth polymerase 50X mix in a total volume of 50 µl. The reaction cycle for the first PCR reaction is as follows: 1 min - 94°C / 2 sec - 94°C, 3 min - 72°C (7 cycles) / 2 sec - 94°C, 3 min - 67°C (32 cycles) / 5 min - 67°C.

The product of the first PCR reaction is diluted and used as a template for a second PCR reaction according to the manufacturer's instructions using a pair of nested primers which are located internally on the amplicon resulting from the first PCR reaction. For example, 5 µl of the reaction product of the first PCR reaction mixture may be diluted 180 times. Reactions are made in a 50 µl volume having a composition identical to that of the first PCR reaction except the nested primers are used. The first nested primer is specific for the adaptor, and is provided with the GenomeWalker™ kit. The second nested primer is specific for the particular extended cDNA or 5' EST for which the promoter is to be cloned and should have a melting temperature, length, and location in the extended cDNA or 5' EST which is consistent with its use in PCR

reactions. The reaction parameters of the second PCR reaction are as follows: 1 min - 94°C / 2 sec - 94°C, 3 min - 72°C (6 cycles) / 2 sec - 94°C, 3 min - 67°C (25 cycles) / 5 min - 67°C. The product of the second PCR reaction is purified, cloned, and sequenced using standard techniques.

5 Alternatively, two or more human genomic DNA libraries can be constructed by using two or more restriction enzymes. The digested genomic DNA is cloned into vectors which can be converted into single stranded, circular, or linear DNA. A biotinylated oligonucleotide comprising at least 15 nucleotides from the extended cDNA or 5' EST
10 sequence is hybridized to the single stranded DNA. Hybrids between the biotinylated oligonucleotide and the single stranded DNA containing the extended cDNA or EST sequence are isolated as described in Example 29 above. Thereafter, the single stranded DNA containing the extended cDNA or EST sequence is released from the beads and converted into double stranded DNA using a primer specific for the extended cDNA or 5' EST sequence or a primer corresponding to a sequence included in the cloning vector. The
15 resulting double stranded DNA is transformed into bacteria. DNAs containing the 5' EST or extended cDNA sequences are identified by colony PCR or colony hybridization.

Once the upstream genomic sequences have been cloned and sequenced as described above, prospective promoters and transcription start sites within the upstream sequences may
20 be identified by comparing the sequences upstream of the extended cDNAs or 5' ESTs with databases containing known transcription start sites, transcription factor binding sites, or promoter sequences.

In addition, promoters in the upstream sequences may be identified using promoter reporter vectors as described in Example .

25

EXAMPLE 59

Identification of Promoters in Cloned Upstream Sequences

The genomic sequences upstream of the extended cDNAs or 5' ESTs are cloned into a suitable promoter reporter vector, such as the pSEAP-Basic, pSEAP-Enhancer, p β gal-Basic, p β gal-Enhancer, or pEGFP-1 Promoter Reporter vectors available from Clontech.
30 Briefly, each of these promoter reporter vectors include multiple cloning sites positioned

upstream of a reporter gene encoding a readily assayable protein such as secreted alkaline phosphatase, β galactosidase, or green fluorescent protein. The sequences upstream of the extended cDNAs or 5' ESTs are inserted into the cloning sites upstream of the reporter gene in both orientations and introduced into an appropriate host cell. The level of reporter protein is assayed and compared to the level obtained from a vector which lacks an insert in the cloning site. The presence of an elevated expression level in the vector containing the insert with respect to the control vector indicates the presence of a promoter in the insert. If necessary, the upstream sequences can be cloned into vectors which contain an enhancer for augmenting transcription levels from weak promoter sequences. A significant level of expression above that observed with the vector lacking an insert indicates that a promoter sequence is present in the inserted upstream sequence.

Appropriate host cells for the promoter reporter vectors may be chosen based on the results of the above described determination of expression patterns of the extended cDNAs and ESTs. For example, if the expression pattern analysis indicates that the mRNA corresponding to a particular extended cDNA or 5' EST is expressed in fibroblasts, the promoter reporter vector may be introduced into a human fibroblast cell line.

Promoter sequences within the upstream genomic DNA may be further defined by constructing nested deletions in the upstream DNA using conventional techniques such as Exonuclease III digestion. The resulting deletion fragments can be inserted into the promoter reporter vector to determine whether the deletion has reduced or obliterated promoter activity. In this way, the boundaries of the promoters may be defined. If desired, potential individual regulatory sites within the promoter may be identified using site directed mutagenesis or linker scanning to obliterate potential transcription factor binding sites within the promoter individually or in combination. The effects of these mutations on transcription levels may be determined by inserting the mutations into the cloning sites in the promoter reporter vectors.

EXAMPLE 60

Cloning and Identification of Promoters

Using the method described in Example 58 above with 5' ESTs, sequences upstream of several genes were obtained. Using the primer pairs GGG AAG ATG GAG ATA GTA

TTG CCT G (SEQ ID NO:29) and CTG CCA TGT ACA TGA TAG AGA GAT TC (SEQ ID NO:30), the promoter having the internal designation P13H2 (SEQ ID NO:31) was obtained.

5 Using the primer pairs GTA CCA GGGG ACT GTG ACC ATT GC (SEQ ID NO:32) and CTG TGA CCA TTG CTC CCA AGA GAG (SEQ ID NO:33), the promoter having the internal designation P15B4 (SEQ ID NO:34) was obtained.

Using the primer pairs CTG GGA TGG AAG GCA CGG TA (SEQ ID NO:35) and GAG ACC ACA CAG CTA GAC AA (SEQ ID NO:36), the promoter having the internal designation P29B6 (SEQ ID NO:37) was obtained.

10 Figure 4 provides a schematic description of the promoters isolated and the way they are assembled with the corresponding 5' tags. The upstream sequences were screened for the presence of motifs resembling transcription factor binding sites or known transcription start sites using the computer program MatInspector release 2.0, August 1996.

Table VII describes the transcription factor binding sites present in each of these
15 promoters. The columns labeled matrix provides the name of the MatInspector matrix used. The column labeled position provides the 5' position of the promoter site. Numeration of the sequence starts from the transcription site as determined by matching the genomic sequence with the 5' EST sequence. The column labeled "orientation" indicates the DNA strand on which the site is found, with the + strand being the coding strand as determined by matching
20 the genomic sequence with the sequence of the 5' EST. The column labeled "score" provides the MatInspector score found for this site. The column labeled "length" provides the length of the site in nucleotides. The column labeled "sequence" provides the sequence of the site found.

Bacterial clones containing plasmids containing the promoter sequences described
25 above described above are presently stored in the inventor's laboratories under the internal identification numbers provided above. The inserts may be recovered from the deposited materials by growing an aliquot of the appropriate bacterial clone in the appropriate medium. The plasmid DNA can then be isolated using plasmid isolation procedures familiar to those skilled in the art such as alkaline lysis minipreps or large scale alkaline lysis plasmid isolation
30 procedures. If desired the plasmid DNA may be further enriched by centrifugation on a cesium chloride gradient, size exclusion chromatography, or anion exchange chromatography.

The plasmid DNA obtained using these procedures may then be manipulated using standard cloning techniques familiar to those skilled in the art. Alternatively, a PCR can be done with primers designed at both ends of the EST insertion. The PCR product which corresponds to the 5' EST can then be manipulated using standard cloning techniques familiar to those skilled in the art.

The promoters and other regulatory sequences located upstream of the extended cDNAs or 5' ESTs may be used to design expression vectors capable of directing the expression of an inserted gene in a desired spatial, temporal, developmental, or quantitative manner. A promoter capable of directing the desired spatial, temporal, developmental, and quantitative patterns may be selected using the results of the expression analysis described in Example 26 above. For example, if a promoter which confers a high level of expression in muscle is desired, the promoter sequence upstream of an extended cDNA or 5' EST derived from an mRNA which is expressed at a high level in muscle, as determined by the method of Example 26, may be used in the expression vector.

Preferably, the desired promoter is placed near multiple restriction sites to facilitate the cloning of the desired insert downstream of the promoter, such that the promoter is able to drive expression of the inserted gene. The promoter may be inserted in conventional nucleic acid backbones designed for extrachromosomal replication, integration into the host chromosomes or transient expression. Suitable backbones for the present expression vectors include retroviral backbones, backbones from eukaryotic episomes such as SV40 or Bovine Papilloma Virus, backbones from bacterial episomes, or artificial chromosomes.

Preferably, the expression vectors also include a polyA signal downstream of the multiple restriction sites for directing the polyadenylation of mRNA transcribed from the gene inserted into the expression vector.

Following the identification of promoter sequences using the procedures of Examples 58-60, proteins which interact with the promoter may be identified as described in Example 61 below.

EXAMPLE 61Identification of Proteins Which Interact with Promoter Sequences, UpstreamRegulatory Sequences, or mRNA

Sequences within the promoter region which are likely to bind transcription factors
5 may be identified by homology to known transcription factor binding sites or through
conventional mutagenesis or deletion analyses of reporter plasmids containing the promoter
sequence. For example, deletions may be made in a reporter plasmid containing the promoter
sequence of interest operably linked to an assayable reporter gene. The reporter plasmids
carrying various deletions within the promoter region are transfected into an appropriate host
10 cell and the effects of the deletions on expression levels is assessed. Transcription factor
binding sites within the regions in which deletions reduce expression levels may be further
localized using site directed mutagenesis, linker scanning analysis, or other techniques familiar
to those skilled in the art.

Nucleic acids encoding proteins which interact with sequences in the promoter may
15 be identified using one-hybrid systems such as those described in the manual accompanying
the Matchmaker One-Hybrid System kit available from Clontech (Catalog No. K1603-1), the
disclosure of which is incorporated herein by reference. Briefly, the Matchmaker One-hybrid
system is used as follows. The target sequence for which it is desired to identify binding
proteins is cloned upstream of a selectable reporter gene and integrated into the yeast
20 genome. Preferably, multiple copies of the target sequences are inserted into the reporter
plasmid in tandem. A library comprised of fusions between cDNAs to be evaluated for the
ability to bind to the promoter and the activation domain of a yeast transcription factor, such
as GAL4, is transformed into the yeast strain containing the integrated reporter sequence.
The yeast are plated on selective media to select cells expressing the selectable marker linked
25 to the promoter sequence. The colonies which grow on the selective media contain genes
encoding proteins which bind the target sequence. The inserts in the genes encoding the
fusion proteins are further characterized by sequencing. In addition, the inserts may be
inserted into expression vectors or *in vitro* transcription vectors. Binding of the polypeptides
encoded by the inserts to the promoter DNA may be confirmed by techniques familiar to
30 those skilled in the art, such as gel shift analysis or DNase protection analysis.

VII. Use of 5' ESTs (or cDNAs or Genomic DNAs Obtainable Therefrom) in Gene Therapy

The present invention also comprises the use of 5'ESTs (or cDNA or genomic DNA obtainable therefrom) in gene therapy strategies, including antisense and triple helix strategies as described in Examples 62 and 63 below. In antisense approaches, nucleic acid sequences complementary to an mRNA are hybridized to the mRNA intracellularly, thereby blocking the expression of the protein encoded by the mRNA. The antisense sequences may prevent gene expression through a variety of mechanisms. For example, the antisense sequences may inhibit the ability of ribosomes to translate the mRNA. Alternatively, the antisense sequences may block transport of the mRNA from the nucleus to the cytoplasm, thereby limiting the amount of mRNA available for translation. Another mechanism through which antisense sequences may inhibit gene expression is by interfering with mRNA splicing. In yet another strategy, the antisense nucleic acid may be incorporated in a ribozyme capable of specifically cleaving the target mRNA.

EXAMPLE 62

Preparation and Use of Antisense Oligonucleotides

The antisense nucleic acid molecules to be used in gene therapy may be either DNA or RNA sequences. They may comprise a sequence complementary to the sequence of the 5'EST (or cDNA or genomic DNA obtainable therefrom). The antisense nucleic acids should have a length and melting temperature sufficient to permit formation of an intracellular duplex with sufficient stability to inhibit the expression of the mRNA in the duplex. Strategies for designing antisense nucleic acids suitable for use in gene therapy are disclosed in Green *et al.*, *Ann. Rev. Biochem.* 55:569-597, 1986; and Izant and Weintraub, *Cell* 36:1007-1015, 1984, which are hereby incorporated by reference.

In some strategies, antisense molecules are obtained from a nucleotide sequence encoding a protein by reversing the orientation of the coding region with respect to a promoter so as to transcribe the opposite strand from that which is normally transcribed in the cell. The antisense molecules may be transcribed using *in vitro* transcription systems such as those which employ T7 or SP6 polymerase to generate the transcript. Another approach

involves transcription of the antisense nucleic acids *in vivo* by operably linking DNA containing the antisense sequence to a promoter in an expression vector.

Alternatively, oligonucleotides which are complementary to the strand normally transcribed in the cell may be synthesized *in vitro*. Thus, the antisense nucleic acids are complementary to the corresponding mRNA and are capable of hybridizing to the mRNA to create a duplex. In some embodiments, the antisense sequences may contain modified sugar phosphate backbones to increase stability and make them less sensitive to RNase activity. Examples of modifications suitable for use in antisense strategies are described by Rossi *et al.*, *Pharmacol. Ther.* 50(2):245-254, 1991, which is hereby incorporated by reference.

Various types of antisense oligonucleotides complementary to the sequence of the 5'EST (or cDNA or genomic DNA obtainable therefrom) may be used. In one preferred embodiment, stable and semi-stable antisense oligonucleotides described in International Application No. PCT WO94/23026, hereby incorporated by reference, are used. In these molecules, the 3' end or both the 3' and 5' ends are engaged in intramolecular hydrogen bonding between complementary base pairs. These molecules are better able to withstand exonuclease attacks and exhibit increased stability compared to conventional antisense oligonucleotides.

In another preferred embodiment, the antisense oligodeoxynucleotides against herpes simplex virus types 1 and 2 described in International Application No. WO 95/04141, hereby incorporated by reference, are used.

In yet another preferred embodiment, the covalently cross-linked antisense oligonucleotides described in International Application No. WO 96/31523, hereby incorporated by reference, are used. These double- or single-stranded oligonucleotides comprise one or more, respectively, inter- or intra-oligonucleotide covalent cross-linkages, wherein the linkage consists of an amide bond between a primary amine group of one strand and a carboxyl group of the other strand or of the same strand, respectively, the primary amine group being directly substituted in the 2' position of the strand nucleotide monosaccharide ring, and the carboxyl group being carried by an aliphatic spacer group substituted on a nucleotide or nucleotide analog of the other strand or the same strand, respectively.

The antisense oligodeoxynucleotides and oligonucleotides disclosed in International Application No. WO 92/18522, incorporated by reference, may also be used. These molecules are stable to degradation and contain at least one transcription control recognition sequence which binds to control proteins and are effective as decoys therefore. These molecules may contain "hairpin" structures, "dumbbell" structures, "modified dumbbell" structures, "cross-linked" decoy structures and "loop" structures.

In another preferred embodiment, the cyclic double-stranded oligonucleotides described in European Patent Application No. 0 572 287 A2, hereby incorporated by reference are used. These ligated oligonucleotide "dumbbells" contain the binding site for a transcription factor and inhibit expression of the gene under control of the transcription factor by sequestering the factor.

Use of the closed antisense oligonucleotides disclosed in International Application No. WO 92/19732, hereby incorporated by reference, is also contemplated. Because these molecules have no free ends, they are more resistant to degradation by exonucleases than are conventional oligonucleotides. These oligonucleotides may be multifunctional, interacting with several regions which are not adjacent to the target mRNA.

The appropriate level of antisense nucleic acids required to inhibit gene expression may be determined using *in vitro* expression analysis. The antisense molecule may be introduced into the cells by diffusion, injection, infection, transfection or h-region-mediated import using procedures known in the art. For example, the antisense nucleic acids can be introduced into the body as a bare or naked oligonucleotide, oligonucleotide encapsulated in lipid, oligonucleotide sequence encapsidated by viral protein, or as an oligonucleotide operably linked to a promoter contained in an expression vector. The expression vector may be any of a variety of expression vectors known in the art, including retroviral or viral vectors, vectors capable of extrachromosomal replication, or integrating vectors. The vectors may be DNA or RNA.

The antisense molecules are introduced onto cell samples at a number of different concentrations preferably between $1 \times 10^{-10} \text{M}$ to $1 \times 10^{-4} \text{M}$. Once the minimum concentration that can adequately control gene expression is identified, the optimized dose is translated into a dosage suitable for use *in vivo*. For example, an inhibiting concentration in culture of 1×10^{-7} translates into a dose of approximately 0.6 mg/kg bodyweight. Levels of oligonucleotide

approaching 100 mg/kg bodyweight or higher may be possible after testing the toxicity of the oligonucleotide in laboratory animals. It is additionally contemplated that cells from the vertebrate are removed, treated with the antisense oligonucleotide, and reintroduced into the vertebrate.

5 It is further contemplated that the antisense oligonucleotide sequence is incorporated into a ribozyme sequence to enable the antisense to specifically bind and cleave its target mRNA. For technical applications of ribozyme and antisense oligonucleotides see Rossi *et al.*, *supra*.

10 In a preferred application of this invention, the polypeptide encoded by the gene is first identified, so that the effectiveness of antisense inhibition on translation can be monitored using techniques that include but are not limited to antibody-mediated tests such as RIAs and ELISA, functional assays, or radiolabeling.

15 The 5' ESTs of the present invention (or cDNAs or genomic DNAs obtainable therefrom) may also be used in gene therapy approaches based on intracellular triple helix formation. Triple helix oligonucleotides are used to inhibit transcription from a genome. They are particularly useful for studying alterations in cell activity as it is associated with a particular gene. The 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom) of the present invention or, more preferably, a portion of those sequences, can be used to inhibit gene expression in individuals having diseases associated with expression of a particular gene. Similarly, a portion of 5' EST sequences (or cDNAs or genomic DNAs obtainable therefrom) can be used to study the effect of inhibiting transcription of a particular gene within a cell. Traditionally, homopurine sequences were considered the most useful for triple helix strategies. However, homopyrimidine sequences can also inhibit gene expression. Such homopyrimidine oligonucleotides bind to the major groove at homopurine:homopyrimidine sequences. Thus, both types of sequences from the 5'EST or from the gene corresponding to the 5'EST are contemplated within the scope of this invention.

20

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EXAMPLE 63Preparation and Use of Triple Helix Probes

The sequences of the 5' ESTs (or cDNAs or genomic DNAs obtainable therefrom) are scanned to identify 10-mer to 20-mer homopyrimidine or homopurine stretches which could be used in triple-helix based strategies for inhibiting gene expression. Following identification of candidate homopyrimidine or homopurine stretches, their efficiency in inhibiting gene expression is assessed by introducing varying amounts of oligonucleotides containing the candidate sequences into tissue culture cells which normally express the target gene. The oligonucleotides may be prepared on an oligonucleotide synthesizer or they may be purchased commercially from a company specializing in custom oligonucleotide synthesis, such as GENSET, Paris, France.

The oligonucleotides may be introduced into the cells using a variety of methods known to those skilled in the art, including but not limited to calcium phosphate precipitation, DEAE-Dextran, electroporation, liposome-mediated transfection or native uptake.

Treated cells are monitored for altered cell function or reduced gene expression using techniques such as Northern blotting, RNase protection assays, or PCR based strategies to monitor the transcription levels of the target gene in cells which have been treated with the oligonucleotide. The cell functions to be monitored are predicted based upon the homologies of the target gene corresponding to the extended cDNA from which the oligonucleotide was derived with known gene sequences that have been associated with a particular function. The cell functions can also be predicted based on the presence of abnormal physiologies within cells derived from individuals with a particular inherited disease, particularly when the extended cDNA is associated with the disease using techniques described in Example 56.

The oligonucleotides which are effective in inhibiting gene expression in tissue culture cells may then be introduced *in vivo* using the techniques described above and in Example 62 at a dosage calculated based on the *in vitro* results, as described in Example 62.

In some embodiments, the natural (beta) anomers of the oligonucleotide units can be replaced with alpha anomers to render the oligonucleotide more resistant to nucleases. Further, an intercalating agent such as ethidium bromide, or the like, can be attached to the 3' end of the alpha oligonucleotide to stabilize the triple helix. For information on the

generation of oligonucleotides suitable for triple helix formation see Griffin *et al.*, *Science* 245:967-971, 1989, which is hereby incorporated by this reference.

EXAMPLE 64

5 Use of cDNAs Obtained Using the 5' ESTs to Express an Encoded Protein in a Host Organism

The cDNAs obtained as described above using the 5' ESTs of the present invention may also be used to express an encoded protein in a host organism to produce a beneficial effect. In such procedures, the encoded protein may be transiently expressed in the host organism or stably expressed in the host organism. The encoded protein may have any of the activities described above. The encoded protein may be a protein which the host organism lacks or, alternatively, the encoded protein may augment the existing levels of the protein in the host organism.

15 A full length extended cDNA encoding the signal peptide and the mature protein, or an extended cDNA encoding only the mature protein is introduced into the host organism. The extended cDNA may be introduced into the host organism using a variety of techniques known to those of skill in the art. For example, the extended cDNA may be injected into the host organism as naked DNA such that the encoded protein is expressed in the host organism, thereby producing a beneficial effect.

Alternatively, the extended cDNA may be cloned into an expression vector downstream of a promoter which is active in the host organism. The expression vector may be any of the expression vectors designed for use in gene therapy, including viral or retroviral vectors. The expression vector may be directly introduced into the host organism such that the encoded protein is expressed in the host organism to produce a beneficial effect. In another approach, the expression vector may be introduced into cells *in vitro*. Cells containing the expression vector are thereafter selected and introduced into the host organism, where they express the encoded protein to produce a beneficial effect.

EXAMPLE 65**Use of Signal Peptides Encoded by 5' ESTs or Sequences obtained Therefrom
to Import Proteins Into Cells**

5 The short core hydrophobic region (h) of signal peptides encoded by the 5'ESTS or extended cDNAs derived from SEQ ID NOS: 38-270 may also be used as a carrier to import a peptide or a protein of interest, so-called cargo, into tissue culture cells (Lin *et al.*, *J. Biol. Chem.*, 270: 14225-14258, 1995; Du *et al.*, *J. Peptide Res.*, 51: 235-243, 1998; Rojas *et al.*, *Nature Biotech.*, 16: 370-375, 1998).

10 When cell permeable peptides of limited size (approximately up to 25 amino acids) are to be translocated across cell membrane, chemical synthesis may be used in order to add the h region to either the C-terminus or the N-terminus to the cargo peptide of interest. Alternatively, when longer peptides or proteins are to be imported into cells, nucleic acids can be genetically engineered, using techniques familiar to those skilled in the art, in order to link the extended cDNA sequence encoding the h region to the 5' or the 3' end of a DNA
15 sequence coding for a cargo polypeptide. Such genetically engineered nucleic acids are then translated either *in vitro* or *in vivo* after transfection into appropriate cells, using conventional techniques to produce the resulting cell permeable polypeptide. Suitable hosts cells are then simply incubated with the cell permeable polypeptide which is then translocated across the membrane.

20 This method may be applied to study diverse intracellular functions and cellular processes. For instance, it has been used to probe functionally relevant domains of intracellular proteins and to examine protein-protein interactions involved in signal transduction pathways (Lin *et al.*, *supra*; Lin *et al.*, *J. Biol. Chem.*, 271: 5305-5308, 1996; Rojas *et al.*, *J. Biol. Chem.*, 271: 27456-27461, 1996; Liu *et al.*, *Proc. Natl. Acad. Sci. USA*,
25 93: 11819-11824, 1996; Rojas *et al.*, *Bioch. Biophys. Res. Commun.*, 234: 675-680, 1997).

Such techniques may be used in cellular therapy to import proteins producing therapeutic effects. For instance, cells isolated from a patient may be treated with imported therapeutic proteins and then re-introduced into the host organism.

30 Alternatively, the h region of signal peptides of the present invention could be used in combination with a nuclear localization signal to deliver nucleic acids into cell nucleus. Such oligonucleotides may be antisense oligonucleotides or oligonucleotides designed to form

triple helices, as described in examples 62 and 63 respectively, in order to inhibit processing and/or maturation of a target cellular RNA.

As discussed above, the cDNAs or portions thereof obtained using the 5' ESTs of the present invention can be used for various purposes. The polynucleotides can be used to
5 express recombinant protein for analysis, characterization or therapeutic use; as markers for tissues in which the corresponding protein is preferentially expressed (either constitutively or at a particular stage of tissue differentiation or development or in disease states); as molecular weight markers on Southern gels; as chromosome markers or tags (when labeled) to identify chromosomes or to map related gene positions; to compare with endogenous DNA
10 sequences in patients to identify potential genetic disorders; as probes to hybridize and thus discover novel, related DNA sequences; as a source of information to derive PCR primers for genetic fingerprinting; for selecting and making oligomers for attachment to a "gene chip" or other support, including for examination for expression patterns; to raise anti-protein antibodies using DNA immunization techniques; and as an antigen to raise anti-DNA
15 antibodies or elicit another immune response. Where the polynucleotide encodes a protein which binds or potentially binds to another protein (such as, for example, in a receptor-ligand interaction), the polynucleotide can also be used in interaction trap assays (such as, for example, that described in Gyuris *et al.*, *Cell* 75:791-803, 1993, the disclosure of which is hereby incorporated by reference) to identify polynucleotides encoding the other protein with
20 which binding occurs or to identify inhibitors of the binding interaction.

The proteins or polypeptides provided by the present invention can similarly be used in assays to determine biological activity, including in a panel of multiple proteins for high-throughput screening; to raise antibodies or to elicit another immune response; as a reagent (including the labeled reagent) in assays designed to quantitatively determine levels of the
25 protein (or its receptor) in biological fluids; as markers for tissues in which the corresponding protein is preferentially expressed (either constitutively or at a particular stage of tissue differentiation or development or in a disease state); and, of course, to isolate correlative receptors or ligands. Where the protein binds or potentially binds to another protein (such as, for example, in a receptor-ligand interaction), the protein can be used to identify the other
30 protein with which binding occurs or to identify inhibitors of the binding interaction. Proteins

involved in these binding interactions can also be used to screen for peptide or small molecule inhibitors or agonists of the binding interaction.

Any or all of these research utilities are capable of being developed into reagent grade or kit format for commercialization as research products.

5 Methods for performing the uses listed above are well known to those skilled in the art. References disclosing such methods include without limitation *Molecular Cloning; A Laboratory Manual*, 2d ed., Cold Spring Harbor Laboratory Press, Sambrook, Fritsch and Maniatis eds., 1989, and *Methods in Enzymology; Guide to Molecular Cloning Techniques*, Academic Press, Berger and Kimmel eds., 1987.

10 Polynucleotides and proteins of the present invention can also be used as nutritional sources or supplements. Such uses include without limitation use as a protein or amino acid supplement, use as a carbon source, use as a nitrogen source and use as a source of carbohydrate. In such cases the protein or polynucleotide of the invention can be added to the feed of a particular organism or can be administered as a separate solid or liquid
15 preparation, such as in the form of powder, pills, solutions, suspensions or capsules. In the case of microorganisms, the protein or polynucleotide of the invention can be added to the medium in or on which the microorganism is cultured.

20 Although this invention has been described in terms of certain preferred embodiments, other embodiments which will be apparent to those of ordinary skill in the art in view of the disclosure herein are also within the scope of this invention. Accordingly, the scope of the invention is intended to be defined only by reference to the appended claims. All documents cited herein are incorporated herein by reference in their entirety.

| Step | Search characteristic | | Selection Characteristics | | |
|---------------|-----------------------|--------|---------------------------|--------------|-------------|
| | Program | Strand | Parameters | Identity (%) | Length (bp) |
| miscellaneous | blastn | both | S=61 X=16 | 90 | 17 |
| tRNA | fasta | both | - | 80 | 60 |
| rRNA | blastn | both | S=108 | 80 | 40 |
| mtRNA | blastn | both | S=108 | 80 | 40 |
| Prokaryotic | blastn | both | S=144 | 90 | 40 |
| Fungal | blastn | both | S=144 | 90 | 40 |
| Alu | fasta* | both | - | 70 | 40 |
| L1 | blastn | both | S=72 | 70 | 40 |
| Repeats | blastn | both | S=72 | 70 | 40 |
| Promoters | blastn | top | S=54 X=16 | 90 | 15† |
| Vertebrate | fasta* | both | S=108 | 90 | 30 |
| ESTs | blastn | both | S=108 X=16 | 90 | 30 |
| Proteins | blastx [‡] | top | E = 0.001 | - | - |

Table 1: Parameters used for each step of EST analysis

* use "Quick Fast" Database scanner

† alignment further constrained to begin closer than 10bp to EST's end

‡ using BLOSUM62 substitution matrix

TABLE II

| <u>SEQ. ID NO.</u> | <u>CATEGORY</u> | <u>VON HEIJNE SCORE</u> | <u>TISSUE SOURCE</u> | <u>INTERNAL DESIGNATION</u> |
|------------------------|-----------------|-----------------------------|--------------------------|---------------------------------|
| ID38 | new | 10.8 | Brain | 33-19-2-H2-PU |
| ID39 | new | 10.8 | Brain | 33-56-1-E8-PU |
| ID40 | new | 10 | Brain | 33-79-3-D12-PU |
| ID41 | new | 9.6 | Brain | 33-72-2-B2-PU |
| ID42 | new | 9.5 | Brain | 33-13-2-B9-PU |
| ID43 | new | 9.1 | Brain | 33-113-1-E9-PU |
| ID44 | new | 9 | Brain | 33-28-4-E8-PU |
| ID45 | new | 8.8 | Brain | 33-12-3-F2-PU |
| ID46 | new | 8.8 | Brain | 33-70-1-C11-PU |
| ID47 | new | 8.5 | Brain | 33-74-1-B2-PU |
| ID48 | new | 8.5 | Brain | 33-29-3-F1-PU |
| ID49 | new | 8.4 | Brain | 33-8-2-A1-PU |
| ID50 | new | 8.3 | Brain | 17-17-3-A9-PU |
| ID51 | new | 8.3 | Brain | 33-106-2-A8-PU |
| ID52 | new | 8.3 | Brain | 33-112-4-E7-PU |
| ID53 | new | 8.2 | Brain | 33-98-1-E6-PU |
| ID54 | new | 8.2 | Brain | 33-76-1-B6-PU |
| ID55 | new | 8 | Brain | 33-35-4-G8-PU |
| ID56 | new | 7.9 | Brain | 33-17-3-E4-PU |
| ID57 | new | 7.9 | Brain | 33-110-4-B5-PU |
| ID58 | new | 7.8 | Brain | 33-40-1-A11-PU |
| ID59 | new | 7.7 | Brain | 33-71-1-A8-PU |
| ID60 | new | 7.7 | Brain | 33-96-3-G7-PU |
| ID61 | new | 7.6 | Brain | 33-112-3-D12-PU |
| ID62 | new | 7.6 | Brain | 33-62-2-B3-PU |
| ID63 | new | 7.6 | Brain | 33-6-4-G6-PU |
| ID64 | new | 7.5 | Brain | 33-82-4-E2-PU |
| ID65 | new | 7.4 | Brain | 33-81-3-H11-PU |
| ID66 | new | 7.3 | Brain | 33-64-1-B4-PU |
| ID67 | new | 7.2 | Brain | 33-31-1-B12-PU |
| ID68 | new | 7 | Brain | 33-24-4-F9-PU |
| ID69 | new | 7 | Brain | 33-110-3-E9-PU |
| ID70 | new | 7 | Brain | 33-4-2-G5-PU |
| ID71 | new | 6.9 | Brain | 33-74-2-A4-PU |
| ID72 | new | 6.9 | Brain | 33-52-4-F9-PU |
| ID73 | new | 6.9 | Brain | 33-74-1-B11-PU |
| ID74 | new | 6.8 | Brain | 33-10-4-D9-PU |
| ID75 | new | 6.8 | Brain | 33-15-2-H3-PU |
| ID76 | new | 6.7 | Brain | 33-38-2-D5-PU |
| ID77 | new | 6.7 | Brain | 33-78-3-D2-PU |
| ID78 | new | 6.7 | Brain | 33-96-3-D3-PU |
| ID79 | new | 6.6 | Brain | 33-76-4-B11-PU |
| ID80 | new | 6.3 | Brain | 33-39-1-C6-PU |
| ID81 | new | 6.1 | Brain | 33-106-3-B12-PU |
| ID82 | new | 6 | Brain | 33-4-2-B7-PU |
| ID83 | new | 5.9 | Brain | 33-99-2-E4-PU |
| ID84 | new | 5.9 | Brain | 33-34-1-B1-PU |
| ID85 | new | 5.8 | Brain | 33-67-4-E9-PU |
| ID86 | new | 5.7 | Brain | 33-11-3-H11-PU |

| <u>SEQ. ID NO.</u> | <u>CATEGORY</u> | <u>VON HEIJNE SCORE</u> | <u>TISSUE SOURCE</u> | <u>INTERNAL DESIGNATION</u> |
|------------------------|-----------------|-----------------------------|--------------------------|---------------------------------|
| ID87 | new | 5.6 | Brain | 33-13-2-A8-PU |
| ID88 | new | 5.6 | Brain | 33-83-4-B6-PU |
| ID89 | new | 5.6 | Brain | 33-70-1-E4-PU |
| ID90 | new | 5.6 | Brain | 33-5-3-H11-PU |
| ID91 | new | 5.6 | Brain | 33-10-3-G5-PU |
| ID92 | new | 5.5 | Brain | 33-97-4-G4-PU |
| ID93 | new | 5.5 | Brain | 33-46-4-F4-PU |
| ID94 | new | 5.4 | Brain | 33-4-1-G11-PU |
| ID95 | new | 5.3 | Brain | 33-105-1-H5-PU |
| ID96 | new | 5.3 | Brain | 33-74-2-B10-PU |
| ID97 | new | 5.3 | Brain | 33-49-3-E5-PU |
| ID98 | new | 5.3 | Brain | 33-114-2-A1-PU |
| ID99 | new | 5.2 | Brain | 33-71-1-G12-PU |
| ID100 | new | 5.2 | Brain | 33-47-3-E6-PU |
| ID101 | new | 5.2 | Brain | 33-1-2-E8-PU |
| ID102 | new | 5.2 | Brain | 33-93-4-E12-PU |
| ID103 | new | 5.1 | Brain | 33-1-2-H1-PU |
| ID104 | new | 5.1 | Brain | 17-10-1-H8-PU |
| ID105 | new | 5 | Brain | 33-110-2-B8-PU |
| ID106 | new | 5 | Brain | 33-104-3-D9-PU |
| ID107 | new | 5 | Brain | 33-72-2-H11-PU |
| ID108 | new | 4.9 | Brain | 33-7-4-D6-PU |
| ID109 | new | 4.9 | Brain | 33-31-4-G2-PU |
| ID110 | new | 4.9 | Brain | 33-109-1-E8-PU |
| ID111 | new | 4.8 | Brain | 17-1-2-B11-PU |
| ID112 | new | 4.8 | Brain | 33-19-4-H3-PU |
| ID113 | new | 4.8 | Brain | 33-14-4-E1-PU |
| ID114 | new | 4.8 | Brain | 33-70-3-H1-PU |
| ID115 | new | 4.7 | Brain | 33-86-4-H10-PU |
| ID116 | new | 4.7 | Brain | 33-107-3-D5-PU |
| ID117 | new | 4.7 | Brain | 33-23-4-B9-PU |
| ID118 | new | 4.7 | Brain | 33-82-4-H5-PU |
| ID119 | new | 4.6 | Brain | 33-16-3-F4-PU |
| ID120 | new | 4.6 | Brain | 33-97-4-C5-PU |
| ID121 | new | 4.6 | Brain | 33-100-3-B10-PU |
| ID122 | new | 4.6 | Brain | 33-59-3-E3-PU |
| ID123 | new | 4.5 | Brain | 33-25-1-G2-PU |
| ID124 | new | 4.5 | Brain | 17-16-3-B2-PU |
| ID125 | new | 4.4 | Brain | 33-52-4-E7-PU |
| ID126 | new | 4.4 | Brain | 33-91-1-D1-PU |
| ID127 | new | 4.4 | Brain | 33-26-1-B9-PU |
| ID128 | new | 4.4 | Brain | 33-97-3-H6-PU |
| ID129 | new | 4.4 | Brain | 33-109-2-E8-PU |
| ID130 | new | 4.3 | Brain | 33-59-2-B7-PU |
| ID131 | new | 4.3 | Brain | 33-28-4-D1-PU |
| ID132 | new | 4.3 | Brain | 33-29-4-E2-PU |
| ID133 | new | 4.1 | Brain | 33-70-1-H6-PU |
| ID134 | new | 4.1 | Brain | 33-7-1-B2-PU |
| ID135 | new | 4.1 | Brain | 33-52-4-F8-PU |
| ID136 | new | 4.1 | Brain | 33-23-2-A6-PU |
| ID137 | new | 4.1 | Brain | 33-39-3-E5-PU |

| <u>SEQ. ID NO.</u> | <u>CATEGORY</u> | <u>VON HEIJNE SCORE</u> | <u>TISSUE SOURCE</u> | <u>INTERNAL DESIGNATION</u> |
|------------------------|-----------------|-----------------------------|--------------------------|---------------------------------|
| ID138 | new | 4.1 | Brain | 33-81-4-H6-PU |
| ID139 | new | 4.1 | Brain | 33-105-3-F5-PU |
| ID140 | new | 4 | Brain | 33-35-2-H11-PU |
| ID141 | new | 4 | Brain | 33-50-3-E12-PU |
| ID142 | new | 4 | Brain | 33-16-3-H7-PU |
| ID143 | new | 4 | Brain | 33-79-2-H4-PU |
| ID144 | new | 3.9 | Brain | 33-32-4-B12-PU |
| ID145 | new | 3.9 | Brain | 33-110-4-A5-PU |
| ID146 | new | 3.9 | Brain | 33-109-2-H1-PU |
| ID147 | new | 3.9 | Brain | 33-100-1-E6-PU |
| ID148 | new | 3.9 | Brain | 33-78-2-E7-PU |
| ID149 | new | 3.9 | Brain | 33-82-4-G3-PU |
| ID150 | new | 3.9 | Brain | 17-1-1-A9-PU |
| ID151 | new | 3.9 | Brain | 33-89-4-E1-PU |
| ID152 | new | 3.9 | Brain | 33-89-1-B4-PU |
| ID153 | new | 3.9 | Brain | 33-96-3-A3-PU |
| ID154 | new | 3.8 | Brain | 33-92-3-D1-PU |
| ID155 | new | 3.8 | Brain | 33-104-4-H4-PU |
| ID156 | new | 3.8 | Brain | 33-106-1-B8-PU |
| ID157 | new | 3.6 | Brain | 33-1-3-D1-PU |
| ID158 | new | 3.6 | Brain | 33-40-2-F5-PU |
| ID159 | new | 3.6 | Brain | 33-4-1-E8-PU |
| ID160 | new | 3.6 | Brain | 33-36-3-E2-PU |
| ID161 | new | 3.6 | Brain | 17-18-3-A6-PU |
| ID162 | new | 3.6 | Brain | 33-12-1-B1-PU |
| ID163 | new | 3.6 | Brain | 33-29-1-H1-PU |
| ID164 | new | 3.6 | Brain | 33-103-1-E1-PU |
| ID165 | new | 3.5 | Brain | 33-10-4-H2-PU |
| ID166 | new | 3.5 | Brain | 33-25-1-H2-PU |
| ID167 | new | 3.5 | Brain | 33-10-4-G2-PU |
| ID168 | new | 3.5 | Brain | 33-67-1-F4-PU |
| ID169 | ext-est-not-vrt | 12.5 | Brain | 33-77-4-E2-PU |
| ID170 | ext-est-not-vrt | 10.1 | Brain | 33-31-3-C11-PU |
| ID171 | ext-est-not-vrt | 9.8 | Brain | 33-28-2-H7-PU |
| ID172 | ext-est-not-vrt | 9.2 | Brain | 33-112-3-C8-PU |
| ID173 | ext-est-not-vrt | 7.9 | Brain | 33-23-3-A11-PU |
| ID174 | ext-est-not-vrt | 7.9 | Brain | 33-29-2-E11-PU |
| ID175 | ext-est-not-vrt | 7.9 | Brain | 33-66-4-C7-PU |
| ID176 | ext-est-not-vrt | 7.1 | Brain | 33-78-1-D7-PU |
| ID177 | ext-est-not-vrt | 6.6 | Brain | 33-31-3-D7-PU |
| ID178 | ext-est-not-vrt | 6.3 | Brain | 33-19-1-C11-PU |
| ID179 | ext-est-not-vrt | 6 | Brain | 33-67-1-A5-PU |
| ID180 | ext-est-not-vrt | 5.9 | Brain | 33-58-3-C8-PU |
| ID181 | ext-est-not-vrt | 4.9 | Brain | 33-107-4-C3-PU |
| ID182 | ext-est-not-vrt | 4.9 | Brain | 33-7-2-G12-PU |
| ID183 | ext-est-not-vrt | 4.8 | Brain | 33-11-1-G5-PU |
| ID184 | ext-est-not-vrt | 4.7 | Brain | 33-31-4-D9-PU |
| ID185 | ext-est-not-vrt | 4.6 | Brain | 33-26-4-E10-PU |
| ID186 | ext-est-not-vrt | 4.5 | Brain | 33-70-4-F7-PU |
| ID187 | ext-est-not-vrt | 4.5 | Brain | 33-19-2-D1-PU |
| ID188 | ext-est-not-vrt | 4.4 | Brain | 33-48-4-F8-PU |

| <u>SEQ. ID NO.</u> | <u>CATEGORY</u> | <u>VON HEIJNE SCORE</u> | <u>TISSUE SOURCE</u> | <u>INTERNAL DESIGNATION</u> |
|------------------------|-----------------|-----------------------------|--------------------------|---------------------------------|
| ID189 | ext-est-not-vrt | 4.3 | Brain | 33-109-3-B10-PU |
| ID190 | ext-est-not-vrt | 4.1 | Brain | 33-30-2-A6-PU |
| ID191 | ext-est-not-vrt | 3.8 | Brain | 33-75-3-D7-PU |
| ID192 | ext-est-not-vrt | 3.7 | Brain | 33-109-4-C1-PU |
| ID193 | est-not-ext | 10.5 | Brain | 33-97-3-D4-PU |
| ID194 | est-not-ext | 10.1 | Brain | 33-61-2-F6-PU |
| ID195 | est-not-ext | 9.5 | Brain | 33-54-1-B9-PU |
| ID196 | est-not-ext | 9.3 | Brain | 33-39-4-D1-PU |
| ID197 | est-not-ext | 9.1 | Brain | 33-57-4-H5-PU |
| ID198 | est-not-ext | 9 | Brain | 33-60-2-B3-PU |
| ID199 | est-not-ext | 8.6 | Brain | 33-52-1-A1-PU |
| ID200 | est-not-ext | 8.4 | Brain | 33-82-2-H10-PU |
| ID201 | est-not-ext | 7.5 | Brain | 33-79-4-B11-PU |
| ID202 | est-not-ext | 7.5 | Brain | 33-18-3-H3-PU |
| ID203 | est-not-ext | 7.5 | Brain | 33-21-1-D6-PU |
| ID204 | est-not-ext | 7.4 | Brain | 33-17-3-F9-PU |
| ID205 | est-not-ext | 7.4 | Brain | 33-70-2-G3-PU |
| ID206 | est-not-ext | 7.4 | Brain | 33-89-3-H4-PU |
| ID207 | est-not-ext | 7.4 | Brain | 33-46-3-E10-PU |
| ID208 | est-not-ext | 7 | Brain | 33-36-2-F9-PU |
| ID209 | est-not-ext | 6.8 | Brain | 33-39-1-C4-PU |
| ID210 | est-not-ext | 6.8 | Brain | 33-65-4-C6-PU |
| ID211 | est-not-ext | 6.4 | Brain | 33-18-2-G6-PU |
| ID212 | est-not-ext | 6.4 | Brain | 33-36-3-C6-PU |
| ID213 | est-not-ext | 6 | Brain | 33-79-2-B6-PU |
| ID214 | est-not-ext | 5.9 | Brain | 33-71-4-D11-PU |
| ID215 | est-not-ext | 5.9 | Brain | 17-12-2-A3-PU |
| ID216 | est-not-ext | 5.9 | Brain | 33-95-1-A12-PU |
| ID217 | est-not-ext | 5.8 | Brain | 33-5-3-E3-PU |
| ID218 | est-not-ext | 5.8 | Brain | 33-74-2-D3-PU |
| ID219 | est-not-ext | 5.7 | Brain | 33-50-3-H8-PU |
| ID220 | est-not-ext | 5.6 | Brain | 33-19-1-A2-PU |
| ID221 | est-not-ext | 5.5 | Brain | 33-22-1-D3-PU |
| ID222 | est-not-ext | 5.5 | Brain | 33-97-1-G4-PU |
| ID223 | est-not-ext | 5.4 | Brain | 33-65-4-D10-PU |
| ID224 | est-not-ext | 5.4 | Brain | 33-79-4-C4-PU |
| ID225 | est-not-ext | 5.3 | Brain | 33-20-2-C5-PU |
| ID226 | est-not-ext | 5.2 | Brain | 33-34-4-A5-PU |
| ID227 | est-not-ext | 5.2 | Brain | 33-6-2-F11-PU |
| ID228 | est-not-ext | 5.2 | Brain | 33-2-2-G5-PU |
| ID229 | est-not-ext | 5.1 | Brain | 33-98-1-G7-PU |
| ID230 | est-not-ext | 5.1 | Brain | 33-20-3-B10-PU |
| ID231 | est-not-ext | 5 | Brain | 33-106-2-D9-PU |
| ID232 | est-not-ext | 4.9 | Brain | 33-72-2-A9-PU |
| ID233 | est-not-ext | 4.9 | Brain | 33-83-3-G8-PU |
| ID234 | est-not-ext | 4.8 | Brain | 33-31-3-E6-PU |
| ID235 | est-not-ext | 4.7 | Brain | 33-28-4-E2-PU |
| ID236 | est-not-ext | 4.6 | Brain | 33-101-3-F4-PU |
| ID237 | est-not-ext | 4.6 | Brain | 33-98-4-C1-PU |
| ID238 | est-not-ext | 4.5 | Brain | 33-31-2-E11-PU |
| ID239 | est-not-ext | 4.5 | Brain | 33-26-2-B6-PU |

| <u>SEQ. ID NO.</u> | <u>CATEGORY</u> | <u>VON HEIJNE SCORE</u> | <u>TISSUE SOURCE</u> | <u>INTERNAL DESIGNATION</u> |
|------------------------|---------------------|-----------------------------|--------------------------|---------------------------------|
| ID240 | est-not-ext | 4.4 | Brain | 33-75-4-H7-PU |
| ID241 | est-not-ext | 4.3 | Brain | 33-13-1-C6-PU |
| ID242 | est-not-ext | 4.3 | Brain | 33-35-4-G1-PU |
| ID243 | est-not-ext | 4.3 | Brain | 33-76-3-G11-PU |
| ID244 | est-not-ext | 4.2 | Brain | 33-72-1-A3-PU |
| ID245 | est-not-ext | 4.2 | Brain | 33-71-2-A2-PU |
| ID246 | est-not-ext | 4.2 | Brain | 33-23-3-H10-PU |
| ID247 | est-not-ext | 4.2 | Brain | 33-13-1-C1-PU |
| ID248 | est-not-ext | 4.2 | Brain | 33-43-2-G12-PU |
| ID249 | est-not-ext | 4.2 | Brain | 33-91-4-E10-PU |
| ID250 | est-not-ext | 4.1 | Brain | 33-113-2-B8-PU |
| ID251 | est-not-ext | 4 | Brain | 33-104-3-G9-PU |
| ID252 | est-not-ext | 3.9 | Brain | 33-66-2-B10-PU |
| ID253 | est-not-ext | 3.9 | Brain | 33-1-2-E9-PU |
| ID254 | est-not-ext | 3.9 | Brain | 33-51-1-G7-PU |
| ID255 | est-not-ext | 3.9 | Brain | 33-32-3-D11-PU |
| ID256 | est-not-ext | 3.8 | Brain | 33-43-2-H10-PU |
| ID257 | est-not-ext | 3.8 | Brain | 33-48-4-H11-PU |
| ID258 | est-not-ext | 3.8 | Brain | 33-8-4-C5-PU |
| ID259 | est-not-ext | 3.8 | Brain | 33-24-1-F5-PU |
| ID260 | est-not-ext | 3.8 | Brain | 33-70-1-A9-PU |
| ID261 | est-not-ext | 3.8 | Brain | 33-30-4-C4-PU |
| ID262 | est-not-ext | 3.8 | Brain | 33-10-2-G7-PU |
| ID263 | est-not-ext | 3.6 | Brain | 33-18-4-E12-PU |
| ID264 | est-not-ext | 3.6 | Brain | 33-52-1-G7-PU |
| ID265 | est-not-ext | 3.6 | Brain | 33-57-1-H10-PU |
| ID266 | est-not-ext | 3.5 | Brain | 33-80-3-E2-PU |
| ID267 | est-not-ext | 3.5 | Brain | 33-36-1-D3-PU |
| ID268 | ext-vrt-not-genomic | 11.3 | Brain | 33-101-1-A2-PU |
| ID269 | ext-vrt-not-genomic | 6.6 | Brain | 33-55-2-E8-PU |
| ID270 | ext-vrt-not-genomic | 4.8 | Brain | 33-14-2-H3-PU |

TABLE III

| SEQ. ID NO. | SIGNAL PEPTIDE |
|----------------|--|
| ID38 | MLLLGLCLGLSLC |
| ID39 | MENGGAGTLQIRQVLLFFVLLGMSQA |
| ID40 | MRGPEPGPQPTMEGDVLDLTLEALGYKGPLLEEALTKAAEGGLSSPEFSELCIWLGSQIK SLCNLEESITSAGRDDLESFQLEISGFLKEMACPYSVLISGDIKDRLLKKKEDCLKLLFL STELQA |
| ID41 | MEKSWMLWNFVERWLIALASWSWALC |
| ID42 | MQQTRTEAVAGAFSHCLGFCGMRLGLLLARHWCIA |
| ID43 | MEKGNAFLKNRLVVFLLPLASGP |
| ID44 | MFPFNQAGLPTLLMLIVFHAASMA |
| ID45 | MTSRSLRRCCLRVTNKEILASTVSLGVEGYMLGGSRINSSNLNDGEEECSPDSLLVW KKKSLLLWMSSPSLG |
| ID46 | MWTASAMDFRTCIASXLPALCYVQACRALMIAASVLGLPAIILLTLVPCIXM |
| ID47 | MGPPPTHIKYLHLNIYCNGKSTAPGIRSHSLGFALLSLSHPTCQA |
| ID48 | MFCLLTFLAFTLLFA |
| ID49 | MHCGSTPGLCPCWVPFLKCLLAVLSSLFA |
| ID50 | MNLVCSALLLIGIVSS |
| ID51 | MSVLDDRQDILVVQKRHSSLEAAMLIGLLAWLQT |
| ID52 | MGVNGRRLIICHYLPPLSLC |
| ID53 | MKLRECPALRWSQLSQHKLECLLLYLAESSG |
| ID54 | MDPRGILKAFPKRQKIHADASSKVLAKIPRREEGEEAEWLSSLRAHVVRTGIGRARAEL FEKQIVQHGGQLCPAQQPGVTHIVVDEGMDYERALLRLPQLPPXCSA |
| ID55 | MFWKLSLSLFLVAVLVKVAEA |
| ID56 | MAFLGLFSLLVLQSMATG |
| ID57 | MAFLGLFSLLVLQSMATG |
| ID58 | MSFSLNFTLPANTTSSPVTGGKETDCGPSLGLAAGIPLL VATALLVALLFTLIHR |
| ID59 | MSTWYALNKS YKNKDSVRIYLSLCTVSIKFTYFHDIQTNCLTTWKHSRCRFYWAFGGSI LQHSVDPLVFLSLALLVTP |
| ID60 | MAIGISLQLLCCIFTLVLQ |
| ID61 | MQATSNLLNLLLSLFAGL |
| ID62 | MMKWKPEDLGSVPCEAFSVTLICGWPGSHWC |
| ID63 | MQATSNLLNLLLSLFAGL |
| ID64 | MASSHWNETTTSVYQYLGFQVQKIYPFHDNWNTACFVILLFIFTVVS |
| ID65 | MLWFSGVGALAERYCRRSPGITCCVLLLNCSG |
| ID66 | MLFLQMGKQSWTLIFFLNVTQLVRG |
| ID67 | MELRXPPGGREVQLLLGLCSPPXXSL |
| ID68 | MLWSLLSSSGSHFG |
| ID69 | MDISGLIPGLVSTFILLSXSDHYGRKFPMILSSVGALATSVWLCLLCYFAFP |
| ID70 | MXVFFSKNRFEMYFSLLLFVILLITSLIFC |
| ID71 | MPVPACWISSSLSLASHHSVSC |
| ID72 | MCPVFSKQLLACGSLLPGLWQ |
| ID73 | MALTIHGERMRPDWESPWITSSQAQSLSLGGSPSSRGPLVPRGEYLASCPEGVRSHSHLL PRSLPLSAWPPWAWH |
| ID74 | MAARFRCGHL CVPEVPRGPASHAEGGGGRLSRKAAHQALCWRAGGDGRGNFN PMNFLVAGTFASSCHSPPLLWSLPPRIASSLPTLSHP |
| ID75 | MASTISAYKEKMKELS VLSLICSCFYTQP |
| ID76 | MLQVYGKPVYQGHRSTLKKGPYLRFNPSPKSRPQRPKVIERVKGTKVKSIRTQTDFYAT KPKKMDSKMKHSVPVLPHGDQQYLFSPSREMPFTSGTLEGHLIPMAILLGQTQS |
| ID77 | MSVLEISGMIMNRVNSHIPGIGYQIFGNAVSLILGLTPFVFRLSQATDLEQLTAHSASEL YVIAFGSNEDVIVLSMVIISFVVRVSLVWIFFLLCVAERTYKQRLLFAKLFGHLTSA |

| <u>SEQ. ID</u> <u>NO.</u> | <u>SIGNAL PEPTIDE</u> |
|------------------------------|--|
| ID78 | MCKGIKAGDTCEKLVGYSAVYRVCFGMACFFFI FCLLT LKINNSKSCRAHIHNGFWFFKL LLLGAMCSG |
| ID79 | MSDSAGGRAGLRRYPKLPVWVVEDHQEVL PFIYRAIGSKHLPASNVSFLHFD SHPDLLIP VNMPADTVFDKETLFGELSIENWIMPAVYAGHF SHV VWFHPTWA |
| ID80 | MSSCRGQKVAGGLRVVSPFPLCQPAGEPSRGKMRSSCVLLTALVALA |
| ID81 | MIIPFKIKNLGGRVLLSGREMFPASVRAPDLAVALSLLPAWT |
| ID82 | MVCSAPRKIVVRAFITIIFIYYAIKKRANEPAA YMLKPEALILLLLA QKGPS |
| ID83 | MTESSMKKLASTLLDAITDKDPLVQEQVCSALCSLGEVRP |
| ID84 | MQETDCNKRWGRGLGLWSETGRRFHCKSFVFLFHCTSGLS |
| ID85 | MLLEVPWLSSTVSCAQG |
| ID86 | MSGGRMQARCSQQSTWSPAFLAVAGPGWA |
| ID87 | MLQMLWHFLASFFPRAGC |
| ID88 | MYSHPVSSLVCLLAMGKGLG |
| ID89 | MGRKEEDDCSXWKKQTTNIRKTFIFMEVLGSGAFS |
| ID90 | MMIAVFGNANDRNVLTLNPNQSLFSLARA |
| ID91 | MFFELPLVVTAWFFGMCRS |
| ID92 | MNHNIIICVMYIVPFLMTKCLYFCHSCKRGSFLLIVANVHFSQT |
| ID93 | MSCGSAASLTGLCXCLQALG |
| ID94 | MQAVDNLTSAPGNTSLCTRDKITQVLFPLL YTVLFFVGLITNGLA |
| ID95 | MAAAMXLLCSSCCSWGPAAG |
| ID96 | MDFIKDQSLSHRSVVKVLSLRKAQA |
| ID97 | MTRPFWASCSTWATSRISCAFLASSTA |
| ID98 | MKSCAVSLTTAAVAFG |
| ID99 | MSIHECACLSLCLIRMSLS |
| ID100 | MLSGLSFLSVFSLWC |
| ID101 | MGLKDKSQAPASGLGVLRGQRSGSFISMPAPASGQXPEESRSPAPPVASRSQNRGYRPWH GPLWVHQSVRFGLYSILHFPFWVHG |
| ID102 | MSDQIKFIMDSL NKEPFRKNYNLITFDSLEPMQLLQVLSDVLA |
| ID103 | MSPSCLHPDLWSMCLEVPSTATDSVNCGCCLELATEPARNIRSTTRASLLRCSSFTSTR NSTGISALPPAAPMAWPFSASLSTLPVPLTHSSVASLTATPSLA |
| ID104 | MDLSFHLLLDPSSTQS |
| ID105 | MPHFLDWFXVYLVISVLILVGFGAC |
| ID106 | MSKLKVIPEKSLTNNSRIVGLLAQLEKINA |
| ID107 | MMSASRLAGTLIPAMAFLSCVRP |
| ID108 | MVDGTQLRGLTRMYQVPLXLDRETLVRLRFTMVALVTVCCLVAFLFC |
| ID109 | MKQNFLVLNSVWYLISMLQMLAVIIT |
| ID110 | MECQNSSLKKCLLVEKSLVKASYLIAFQTAASKKPFSIAEELIKPYLVEMCLEVLGSSA |
| ID111 | MHSSIKTKGSVMWLVALLEMCVC |
| ID112 | MTVLPLEAISSLSSFVLG |
| ID113 | MGTASRSNIARHLQTNLILFCVGAVGACTL |
| ID114 | MNSSKEEMRELAALFYSVVVSTVSG |
| ID115 | MSQDGGXGELKHMVMSFRVSELQVLLGFAGRNKSGRKHELLAKALHLLKSSC |
| ID116 | MPCISLLGLLYNFVQVLCYLSIFCLGVLF |
| ID117 | MKIAVLFCFFLLIIF |
| ID118 | MAKQKPHVLGSRVMPASCVSERRRKPSFQVSTWSSASLRGSWQ |
| ID119 | MGFLYLKSVFDVSLG |
| ID120 | MRMGPGRKRD FSPVPWSQYFESMEDVEVENETGKDTFRVYKSGSEGPVLLLLHGGG HSALS |
| ID121 | MIFLLYLLPSSEE |
| ID122 | MRMGPGRKRD FSPVPWSQYFESMEDVEVENETGKDTFRVYKSGSEGPVLLLLHGGG HSALS |

| <u>SEQ. ID</u> <u>NO.</u> | <u>SIGNAL PEPTIDE</u> |
|------------------------------|--|
| ID123 | MLSLLNLISILASIPS |
| ID124 | MGTTSNMVTTIHLMLLWPVHPLLVG |
| ID125 | MGDPERPEAAGLDQDERSSSDTNESEIKSNEEPLLRLKSSRRFVIFPIQYPDIWKMYKQAAQ ASFWTAAEEVDLSKDLPHWNKLKADEKYFISHILAFFAASDG |
| ID126 | MDAGLFSLLPHPPCVG |
| ID127 | MLITLTYLIQGESA |
| ID128 | MYTGFRIEATLLTRVQCLCAIPFAFS |
| ID129 | MYKQAQASFWTAAEEVDLSKDLPHWNKLKADEKYFISHILAFFAASDG |
| ID130 | MLLHLCSVKNLQNRFLGLAAMASPSRN |
| ID131 | MPCPTWTCLKSFPSPTSS |
| ID132 | MEDLFSPSIXPPAPNISVPILLGWGLNLTGQG |
| ID133 | MAETKDAAQMLVTFKDVAVTFTREEWRQLDLAQRTLYREVMLETGCLLVSLG |
| ID134 | MLILSQNIAQLEA |
| ID135 | MLLGASAQGLWAHSWTCSCSA |
| ID136 | MAAPLELSCWGGGWG |
| ID137 | MSXVGIDLGFLNCYIAVAR |
| ID138 | MEYSKXFVVFSTMFTASSP |
| ID139 | MPMASSPPSPHPQEPAPLLPSLPRLSLPFRLPWASTATA |
| ID140 | MQHVGXGHPDPIAIMYVCPGHTTWALGLKFLSSSSQ |
| ID141 | MGWEMTCIKSFFWARSHAGFLKCLLLSSLQ |
| ID142 | MVFGGVCPVTSIIAESLQGWNLVQLSFAATTPVLA |
| ID143 | MHFITWSLLFLYQCSL |
| ID144 | MSGASPIERTPMEEAPSSCPTSSCWPSVASPSSWS |
| ID145 | MEWAGKQRDFQVRAAPGWDHLASFPGPSLRLFSGSQA |
| ID146 | MIAFFDEDNPRKRRSYSFTQSAGILCQETTYSTPHTKLEKAKSPTADAKVVSLSLQTSSA |
| ID147 | MGKSIXSLCSVXLKARLKGXLEAVHLCRAQKRRTALFCTLPCPVERG |
| ID148 | MCLHMTLFRVPFTFS |
| ID149 | MLNLKTLTSAALP |
| ID150 | MRARVWPRSHGIPVPSFLSKSSLSHTPSPLLCLYHPPVYT |
| ID151 | MWNAVAIICNGSWCQTXSTSGLESCLCLLIPGPKP |
| ID152 | MLRLGLFKISWARC |
| ID153 | MPFAEDKTYKYICRNFSNFCNVDVVEILPYLPCLTA |
| ID154 | MPGSSGLRFICKSRNHPQFGSFGTDSLFLPPCPC |
| ID155 | MDVTGDEEEEIKQEINMLKKYSHRNIAITYYGAFIKKNPPGMDDQLXLVMEFCGAGS |
| ID156 | MIFGLYFVLAVKLFLVLLNICKG |
| ID157 | MRKKRVEELIVFPGEVTSFSSIKCSSWISSLASG |
| ID158 | MPSSSLAELCLMQQDACLFSLAVSRH |
| ID159 | MDLWSCFLFPVLMESKGLDSEWKMALQMRMQLPCLVLG |
| ID160 | MSGKGKCRPIALRAVPLPTTSTLTA |
| ID161 | MTPKAIQKSSGLFCPSQA |
| ID162 | MPDQFDQAVVLNQLRYSGMLETVRIRKAGYAVRRPFQDFYKRYKVLNRNLALPEDV RGKCTSLQLYDASNS |
| ID163 | MCLVSFFLELNVLQQ |
| ID164 | MRSACLTPCGHA |
| ID165 | MHLLSNWANPASS |
| ID166 | MWSGKWALVSPFAMLHVSRLIPA |
| ID167 | MKVHMHKFKCLICLLTFIFH |
| ID168 | MGRRHVWLTHSALSIFYTADTSHG |
| ID169 | MAVFFVLLALVAGVLG |
| ID170 | MAPLLLQLAVLGAALA |

| SEQ. ID NO. | SIGNAL PEPTIDE |
|----------------|---|
| ID171 | MPVTVTRTTITTTTTSSSGLGSPMIVGSPRALTQPLGLLRLLQLVSTCVA |
| ID172 | MELVLVFLCSLLAPMVLA |
| ID173 | MGPIWSSYYGNCRSLLFVMDASDPTQLSASCVQLLGLLSAEQLAEA |
| ID174 | MSGGRAPAVLLGGVASLLSFVWMPALLPVASRLLLLPRVLLTMASG |
| ID175 | MALSTLNRYLLLMAQEHLEFRLPEIXSLLLLFGGQFASS |
| ID176 | MAARGVIAPVGESLRYAEYLQPSAKRPDADVDQQRLVRSLIAVGLGVAALAF |
| ID177 | MRMCAGSIYKSATQAVLGXFLGGLCRG |
| ID178 | MAERRRPLSPIPSXRRPSEPSRPRPAAAGXRSRPRPGDEELQLPCA VHD LIFWRDVKKTG FVFGTTLIMLLSWQLSVS |
| ID179 | MAAPVLLRVSVPRWERYAVCAAGILLSIYAYHVEREKERDPEHRALCDLGPWVK CSAALASRWGRGFLLGSIFGKDGVLNQPNVFGILIFYILQLLLGMTASAVA |
| ID180 | MSFLQDPSFFTGMGWSIGAGALGAAALALLANT |
| ID181 | MASLLCCGPKLAACGIVLSAWGVIMLIMLGIFFNVHS |
| ID182 | MILPYRMXSLFLHAVSSFT |
| ID183 | MATLVELPDSVLLEIFSYLPVRDRIRISR VCHR WKRLVDDRWL WRHVDTLYTVRALAGR AWA |
| ID184 | MKNACIVLPPTPPPSLQPSASLLAPNRFLFSCFCFLSHKFG |
| ID185 | MAFGLQMFIRQKFPYPLQWSLLVAVVAG |
| ID186 | MYCKILVLMLHTELIRTDYSSVDQLLLNYPAEGLGRERSLLWTPLLSPGSLR |
| ID187 | MAVSHSVKERTISENSLIILLQGLQG |
| ID188 | MESGGRPSLCQFILLGTTSVTA |
| ID189 | MAALDLRAXWIRWSCSCLGXLXGAGGETNGVERPGGGGLALARQGSLRDGRQVGR APAVCFPHGAPGLPPRQRXXGGXPEVQGGESWCPRPRGGGASRTGLRRRKGP TKTPE PESSEAPQDPLNWFGLVPHSLRQAQA |
| ID190 | MAFLPSPA W WISLLPSLLSIC |
| ID191 | MEPKVAELKQKIEDTLCPFGEVYPFQVAWYNELLPPAFHLPLPGPTLA |
| ID192 | MLVLRSGLTKALA |
| ID193 | MSGGHLADLTLLFVLLLFSLIPA |
| ID194 | MKPSRTPARLWMLPQQQAGAVVVAAPTERHPTHMAGWLLGALTLLGLVTS |
| ID195 | MGESIPLAAPVPVEQAVLETFFSHLGIFS YDKAKDNVEKEREANKSAGGSWLSLLAALAH LAAA |
| ID196 | MQMSYAIRCAFYQLLLAALMLVAMLQLLYLSLLSGLHG |
| ID197 | MLRAELKIAVVLFAFHLLLSFILG |
| ID198 | MNHQQTIGRLLCDLHGLSLSPPVANNVQALFRMLTPEAYSCLLILLRTFLCSA |
| ID199 | MIITAVVISVTIFCFQTKVDFTSCTGLFCVLGIVLLVTG |
| ID200 | MAAGGRMEDGSLDITQSIEDDPLLDAQLLPHHSLQAHFRPRFHPLPTVIIVNLLWFIHLV FVVLX |
| ID201 | MSPGCMLLFVFGFVGG |
| ID202 | MKLLLGIALLAYVAS |
| ID203 | MDILVPLLQLLVLLLTPLHLMA |
| ID204 | MEAASPSNSTGVERXADLMDADSLLSLELASGSG |
| ID205 | MIRQERSTSYQEA VRPALPSSKPCLLTSPA VL VKLLSSSASTS |
| ID206 | MKLIDYGLSGYQEEAEVKAMDFITSTAILPLLFGCLGVFG |
| ID207 | MRCLTTPMLLRALAAQAARA |
| ID208 | MSRFLNVLRSWL VMVSIIAMGNTLQSFRDHTFLYEKLYTGKPNLVNGLQARTFGIWTLLS SVIRCLC |
| ID209 | MIFLTLSLDSRVSA |
| ID210 | MQCFSFIKTMMLFNLLIFLCGAALLXVG |
| ID211 | MAEAALEAVRXSYENSRLPQGSSACLLLCPTWTNP |
| ID212 | MATASPSVFLLMVNGQVES |
| ID213 | MAGIKALISLSFGGAIGLMLMLGCALP |

| SEQ. ID NO. | SIGNAL PEPTIDE |
|----------------|---|
| ID214 | MIGDILLFGTLLMNAGA |
| ID215 | MKTMILTLSLFGSCIS |
| ID216 | MDWRVPPSXXDPGHQDIPLPVTXXFISVSVLSSLGIVLA |
| ID217 | MAAAALPAWLSLQSR |
| ID218 | MAMVSAMSWVLYLWISACAMLLCHG |
| ID219 | MGKEWGWQEMENGGAAPAWGAGPPYHPAPPPVEKTLSWGCGFGLHSGFGGSGGG VGLCRLCLVRLFCC |
| ID220 | MLQTSNYSLVLSLQFLLSYD |
| ID221 | MWFEILPGLSVMGVCLLIPGLATA |
| ID222 | MRPSPLSGILADPLXLFPFSEG |
| ID223 | MRESLSXRSWHLPAASLMMAQXFIPAVA |
| ID224 | MSGVVPTAPEQPAXEMENQTKPPDPRPDAPPEYSSHXFTRTPWKQLSLHLLATRACYG |
| ID225 | MWRYQFGWGVITRGPREIPFPSSLASESLLPLPLDLVLTCTSLGFVTRVWMSLNLNELS LYSRTWVFTCLVFFCFG |
| ID226 | MVKLLVAKILCMVGCVFFFMLLGSLLPVKI |
| ID227 | MPVSIMCLIGLKANASS |
| ID228 | MKVILLYL VLEKLVSRA |
| ID229 | MAVTL SLLLGGRVCXPSLA |
| ID230 | MLNQTSGRSLLPELGVVTPAQG |
| ID231 | MTSENLVQTAPKKKKKNGKKGLEPSQSTAAKVPKKAKTWIPEVHDQKADVSAWKDL FVPRPVL RALSFLGFSAPTPIQA |
| ID232 | MAAFGRQXXXWHXLIPLTWACMA |
| ID233 | MSLTSSPKKRRSICFDRFLMPQSQSGPSSLGESYRTGVGFLIPEGWFLSGCPHGSSA |
| ID234 | MGELGNRSRCILFLSENPCLSSEIFQSLXFCLSPPPSPS |
| ID235 | MAELGLNEHHQNEVINYMRFARSKRGLRLKTVDSQFQDLKESRLVEDTFTIDEVSEVLNG LQAVVHSEVESELINTAYTNVLLLRQXFAQAEK |
| ID236 | MVTLPSGTWAFSCPYLALVDGGMLGSAREDAHASVVSVAWGLLYAVAQG |
| ID237 | MASASARGNQDKDAHFPSPSKQSLLFCPKXXLHHHRAEISKIMRECQEESEFWKRALPFSL VSMLVTQG |
| ID238 | MLLMKSILLKVVVLCIYLKFKLMALIYVPDKNNTNNNLRYNHNEISIGISVQCHFILS LCVLCIVLT |
| ID239 | MAQRLLLRFLASVIS |
| ID240 | MAASKVKQDMPPXGGYGPIDYKRNLP RRGLSGYSMLAIGIGTLIYGHWSIMKWNRERRRL QIEDFEARIALPLLQA |
| ID241 | MRHLVTEELFPCSNLEDVVEDNSHSYFTLRITMACKGV PSTLLSLAILSHISTP |
| ID242 | MSAEVKVTGQNQEQLLLAKSAKGAALATLIHQVLEAPGVYVFGELLDMPNVRELAESXF ASTFRLLXVFAYGTYA |
| ID243 | MLLSIGMLMLSATQVXTILXVQLFAFLNLLPVEA |
| ID244 | MGWEVVSLSYCGVSWG |
| ID245 | MRECISVHVGGAGVQIGNACWELFCLEHGIQA |
| ID246 | MAGPLQGGGARALDLLRGLPRVSLA |
| ID247 | MPAGVPMSTYLMFAASXLAMCAGA |
| ID248 | MAVQCVRLARRSLPALALSLRASP |
| ID249 | MFSIISRSRACSMYFKENAKPSQLRLMHYLSPTSA |
| ID250 | MKRLLPATSLAGPVL |
| ID251 | MLIITNPWKYFDAAGRLTPEFSQRLTNKIRELLQQMERGLKSADXXDGTGYTGWAGIAV LYLHLYDVFG |
| ID252 | MCATETVRAWLAQGSSSAGWG |
| ID253 | MLLLATHPETVGQVTLRVXPVSLEVSIMCAAAAAAFCLKXXGANT |
| ID254 | MAASSATPAPXXSQRCGADAGSAARIVFRWGRGRRGARSPEGSGHHGRANGLGGAQ LQGGAXG |

| <u>SEQ. ID</u> <u>NO.</u> | <u>SIGNAL PEPTIDE</u> |
|------------------------------|---|
| ID255 | MLRRPLAGLAAAALGRA |
| ID256 | MDRPGFVAALVAGGVAG |
| ID257 | MIVWFEGISMDLLTLLFQRRS |
| ID258 | MRTFVHFALDALMFPARRRA |
| ID259 | MAAPPQLRALLVVVNALLRKRRYHAALAVLKGFRNGAVYGAKIRAPHALVMTFLFR NGSLQ |
| ID260 | MPVDLGXALGLLPSLAKA |
| ID261 | MNLFIMYMAGNTISIFPTMMVCMMAWRPIQALMAISATFKMLESSQKFLQGLVYLIGNL MGLALAVYKCQS |
| ID262 | MISLTDQKIGMGLTGFGVFFLFFGMILFFDKALLAIGNVLFVAGLAFVIG |
| ID263 | MAASGAPRILVDLLKLXVAPLAVFQMLKSMCAG |
| ID264 | MASVSSATFSGHGARSLLQFLRLVGQ |
| ID265 | MWYLAVLLVLFTLNIL |
| ID266 | MFTFGRLFQIITVVTCLQFIQDCCIHRSRQINSLLEXSSLSRC |
| ID267 | MIQDRDRCAQAAAVAAVGNLEPRGTPGPEDEAFCLPGCVGTLCQLDWWIWG |
| ID268 | MKIIFPILSNPVFRRTVKLLLCLLWIGYSQG |
| ID269 | MVSRMVSTMLSGLLFWLASGWTPAFA |
| ID270 | MTATLAAAADIATMVSGSSGLAXA |

| Minimum signal peptide score | false positive rate | false negative rate | proba(0.1) | proba(0.2) |
|------------------------------------|------------------------|------------------------|------------|------------|
| 3.5 | 0.121 | 0.036 | 0.467 | 0.664 |
| 4 | 0.096 | 0.06 | 0.519 | 0.708 |
| 4.5 | 0.078 | 0.079 | 0.565 | 0.745 |
| 5 | 0.062 | 0.098 | 0.615 | 0.782 |
| 5.5 | 0.05 | 0.127 | 0.659 | 0.813 |
| 6 | 0.04 | 0.163 | 0.694 | 0.836 |
| 6.5 | 0.033 | 0.202 | 0.725 | 0.855 |
| 7 | 0.025 | 0.248 | 0.763 | 0.878 |
| 7.5 | 0.021 | 0.304 | 0.78 | 0.889 |
| 8 | 0.015 | 0.368 | 0.816 | 0.909 |
| 8.5 | 0.012 | 0.418 | 0.836 | 0.92 |
| 9 | 0.009 | 0.512 | 0.856 | 0.93 |
| 9.5 | 0.007 | 0.581 | 0.863 | 0.934 |
| 10 | 0.006 | 0.679 | 0.835 | 0.919 |

TABLE IV

| Minimum signal peptide score | All ESTs | New ESTs | ESTs matching public EST closer than 40 bp from beginning | ESTs extending known mRNA more than 40 bp | ESTs extending public EST more than 40 bp |
|---------------------------------------|----------|----------|--|---|---|
| 3.5 | 2674 | 947 | 599 | 23 | 150 |
| 4 | 2278 | 784 | 499 | 23 | 126 |
| 4.5 | 1943 | 647 | 425 | 22 | 112 |
| 5 | 1657 | 523 | 353 | 21 | 96 |
| 5.5 | 1417 | 419 | 307 | 19 | 80 |
| 6 | 1190 | 340 | 238 | 18 | 68 |
| 6.5 | 1035 | 280 | 186 | 18 | 60 |
| 7 | 893 | 219 | 161 | 15 | 48 |
| 7.5 | 753 | 173 | 132 | 12 | 36 |
| 8 | 636 | 133 | 101 | 11 | 29 |
| 8.5 | 543 | 104 | 83 | 8 | 26 |
| 9 | 456 | 81 | 63 | 6 | 24 |
| 9.5 | 364 | 57 | 48 | 6 | 18 |
| 10 | 303 | 47 | 35 | 6 | 15 |

TABLE V

| Tissue | All ESTs | New ESTs | ESTs matching public EST closer than 40 bp from beginning | ESTs extending known mRNA more than 40 bp | ESTs extending public EST more than 40 bp |
|-----------------------|----------|----------|--|---|---|
| Brain | 329 | 131 | 75 | 3 | 24 |
| Cancerous prostate | 134 | 40 | 37 | 1 | 6 |
| Cerebellum | 17 | 9 | 1 | 0 | 6 |
| Colon | 21 | 11 | 4 | 0 | 0 |
| Dystrophic muscle | 41 | 18 | 8 | 0 | 1 |
| Fetal brain | 70 | 37 | 16 | 0 | 1 |
| Fetal kidney | 227 | 116 | 46 | 1 | 19 |
| Fetal liver | 13 | 7 | 2 | 0 | 0 |
| Heart | 30 | 15 | 7 | 0 | 1 |
| Hypertrophic prostate | 86 | 23 | 22 | 2 | 2 |
| Kidney | 10 | 7 | 3 | 0 | 0 |
| Large intestine | 21 | 8 | 4 | 0 | 1 |
| Liver | 23 | 9 | 6 | 0 | 0 |
| Lung | 24 | 12 | 4 | 0 | 1 |
| Lung (cells) | 57 | 38 | 6 | 0 | 4 |
| Lymph ganglia | 163 | 60 | 23 | 2 | 12 |
| Lymphocytes | 23 | 6 | 4 | 0 | 2 |
| Muscle | 33 | 16 | 6 | 0 | 4 |
| Normal prostate | 181 | 61 | 45 | 7 | 11 |
| Ovary | 90 | 57 | 12 | 1 | 2 |
| Pancreas | 48 | 11 | 6 | 0 | 1 |
| Placenta | 24 | 5 | 1 | 0 | 0 |
| Prostate | 34 | 16 | 4 | 0 | 2 |
| Spleen | 56 | 28 | 10 | 0 | 1 |
| Substantia nigra | 108 | 47 | 27 | 1 | 6 |
| Surrenals | 15 | 3 | 3 | 1 | 0 |
| Testis | 131 | 68 | 25 | 1 | 8 |
| Thyroid | 17 | 8 | 2 | 0 | 2 |
| Umbilical cord | 55 | 17 | 12 | 1 | 3 |
| Uterus | 28 | 15 | 3 | 0 | 2 |
| Non tissue-specific | 568 | 48 | 177 | 2 | 28 |
| Total | 2677 | 947 | 601 | 23 | 150 |

TABLE VI

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Description of Transcription Factor Binding Sites present on promoters isolated from SignalTag sequences

Promoter sequence P13H2 (546 bp):

| Matrix | Position | Orientation | Score | Length | Sequence |
|-----------------|----------|-------------|-------|--------|------------------|
| CMYB_01 | -502 | + | 0.983 | 9 | TGTCAGTTG |
| MYOD_Q6 | -501 | - | 0.961 | 10 | CCCAACTGAC |
| S8_01 | -444 | - | 0.960 | 11 | AATAGAATTAG |
| S8_01 | -425 | + | 0.966 | 11 | AACTAAATTAG |
| DELTAEF1_01 | -390 | - | 0.960 | 11 | GCACACCTCAG |
| GATA_C | -364 | - | 0.964 | 11 | AGATAAATCCA |
| CMYB_01 | -349 | + | 0.958 | 9 | CTTCAGTTG |
| GATA1_02 | -343 | + | 0.959 | 14 | TTGTAGATAGGACA |
| GATA_C | -339 | + | 0.953 | 11 | AGATAGGACAT |
| TAL1ALPHA47_01 | -235 | + | 0.973 | 16 | CATAACAGATGGTAAG |
| TAL1BETA47_01 | -235 | + | 0.983 | 16 | CATAACAGATGGTAAG |
| TAL1BETA1TF2_01 | -235 | + | 0.978 | 16 | CATAACAGATGGTAAG |
| MYOD_Q6 | -232 | - | 0.954 | 10 | ACCATCTGTT |
| GATA1_04 | -217 | - | 0.953 | 13 | TCAAGATAAAGTA |
| IK1_01 | -126 | + | 0.963 | 13 | AGTTGGGAATTCC |
| IK2_01 | -126 | + | 0.985 | 12 | AGTTGGGAATTCC |
| CREL_01 | -123 | + | 0.962 | 10 | TGGGAATTCC |
| GATA1_02 | -96 | + | 0.950 | 14 | TCAGTGATATGGCA |
| SRY_02 | -41 | - | 0.951 | 12 | TAAACAAACA |
| E2F_02 | -33 | + | 0.957 | 8 | TTTAGCGC |
| MZF1_01 | -5 | - | 0.975 | 8 | TGAGGGGA |

Promoter sequence P16B4 (861bp) :

| Matrix | Position | Orientation | Score | Length | Sequence |
|-------------|----------|-------------|-------|--------|-------------|
| NFY_Q6 | -748 | - | 0.956 | 11 | GGACCAATCAT |
| MZF1_01 | -738 | + | 0.962 | 8 | CCTGGGGA |
| CMYB_01 | -684 | + | 0.994 | 9 | TGACCGTTG |
| VMYB_02 | -682 | - | 0.985 | 9 | TCCAACGGT |
| STAT_01 | -673 | + | 0.968 | 9 | TTCCTGGAA |
| STAT_01 | -673 | - | 0.951 | 9 | TTCCAGGAA |
| MZF1_01 | -556 | - | 0.956 | 8 | TTGGGGGA |
| IK2_01 | -451 | + | 0.965 | 12 | GAATGGGATTC |
| MZF1_01 | -424 | + | 0.986 | 8 | AGAGGGGA |
| SRY_02 | -398 | - | 0.955 | 12 | GAAAACAAACA |
| MZF1_01 | -216 | + | 0.960 | 8 | GAAGGGGA |
| MYOD_Q6 | -190 | + | 0.981 | 10 | AGCATCTGCC |
| DELTAEF1_01 | -176 | + | 0.958 | 11 | TCCCACCTTCC |
| S8_01 | 5 | - | 0.992 | 11 | GAGGCAATTAT |
| MZF1_01 | 16 | - | 0.986 | 8 | AGAGGGGA |

Promoter sequence P29B6 (555 bp) :

| Matrix | Position | Orientation | Score | Length | Sequence |
|-------------|----------|-------------|-------|--------|------------------|
| ARNT_01 | -311 | + | 0.964 | 16 | GGACTCACGTGCTGCT |
| NMYC_01 | -309 | + | 0.965 | 12 | ACTCACGTGCTG |
| USF_01 | -309 | + | 0.985 | 12 | ACTCACGTGCTG |
| USF_01 | -309 | - | 0.985 | 12 | CAGCACGTGAGT |
| NMYC_01 | -309 | - | 0.956 | 12 | CAGCACGTGAGT |
| MYCMAX_02 | -309 | - | 0.972 | 12 | CAGCACGTGAGT |
| USF_C | -307 | + | 0.997 | 8 | TCACGTGC |
| USF_C | -307 | - | 0.991 | 8 | GCACGTGA |
| MZF1_01 | -292 | - | 0.968 | 8 | CATGGGGA |
| ELK1_02 | -105 | + | 0.963 | 14 | CTCTCCGGAAGCCT |
| CETS1P54_01 | -102 | + | 0.974 | 10 | TCCGGAAGCC |
| AP1_Q4 | -42 | - | 0.963 | 11 | AGTGACTGAAC |
| AP1FJ_Q2 | -42 | - | 0.961 | 11 | AGTGACTGAAC |
| PADS_C | 45 | + | 1.000 | 9 | TGTGGTCTC |

TABLE VII

CLAIMS

1. A purified or isolated nucleic acid comprising the sequence of one of SEQ ID NOs: 38-270 or comprising a sequence complementary thereto.

5 2. The nucleic acid of Claim 1, wherein said nucleic acid is recombinant.

3. A purified or isolated nucleic acid comprising at least 10 consecutive bases of the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary thereto.

10 4. A purified or isolated nucleic acid comprising at least 15 consecutive bases of one of the sequences of SEQ ID NOs: 38-270 or one of the sequences complementary thereto.

5. The nucleic acid of Claim 4, wherein said nucleic acid is recombinant.

15 6. A purified or isolated nucleic acid of at least 15 bases capable of hybridizing under stringent conditions to the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary to the sequences of SEQ ID NOs: 38-270.

7. The nucleic acid of Claim 6, wherein said nucleic acid is recombinant.

8. A purified or isolated nucleic acid encoding a human gene product, said human gene product having a sequence partially encoded by one of the sequences of SEQ ID NO: 38-270.

20 9. A purified or isolated nucleic acid having the sequence of one of SEQ ID NOs: 38-270 or having a sequence complementary thereto.

10. A purified or isolated nucleic acid comprising the nucleotides of one of SEQ ID NOs: 38-270 which encode a signal peptide.

25 11. A purified or isolated polypeptides comprising a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270.

12. A vector encoding a fusion protein comprising a polypeptide and a signal peptide, said vector comprising a first nucleic acid encoding a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270 operably linked to a second nucleic acid encoding a polypeptide.

30 13. A method of directing the extracellular secretion of a polypeptide or the insertion of a polypeptide into the membrane comprising the steps of:

obtaining a vector according to Claim 12; and

introducing said vector into a host cell such that said fusion protein is secreted into the extracellular environment of said host cell or inserted into the membrane of said host cell.

14. A method of importing a polypeptide into a cell comprising contacting said cell with a fusion protein comprising a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270 operably linked to said polypeptide.

15. A method of making a cDNA encoding a human secretory protein that is partially encoded by one of SEQ ID NOs 38-270, comprising the steps of:

obtaining a cDNA comprising one of the sequences of SEQ ID NOs: 38-270;

contacting said cDNA with a detectable probe comprising at least 15 consecutive nucleotides of said sequence of SEQ ID NO: 38-270 or a sequence complementary thereto under conditions which permit said probe to hybridize to said cDNA;

identifying a cDNA which hybridizes to said detectable probe; and

isolating said cDNA which hybridizes to said probe.

16. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 15.

17. The cDNA of Claim 16 wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

18. A method of making a cDNA comprising one of the sequences of SEQ ID NOs: 38-270, comprising the steps of:

contacting a collection of mRNA molecules from human cells with a first primer capable of hybridizing to the polyA tail of said mRNA;

hybridizing said first primer to said polyA tail;

reverse transcribing said mRNA to make a first cDNA strand;

making a second cDNA strand complementary to said first cDNA strand using at least one primer comprising at least 15 nucleotides of one of the sequences of SEQ ID NOs 38-270; and

isolating the resulting cDNA comprising said first cDNA strand and said second cDNA strand.

19. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 18.

5 20. The cDNA of Claim 19 wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

21. The method of Claim 18, wherein the second cDNA strand is made by:

contacting said first cDNA strand with a first pair of primers, said first pair of primers comprising a second primer comprising at least 15 consecutive nucleotides of one of the sequences of SEQ ID NOs 38-270 and a third primer having a sequence therein which is
10 included within the sequence of said first primer;

performing a first polymerase chain reaction with said first pair of nested primers to generate a first PCR product;

contacting said first PCR product with a second pair of primers, said second pair of primers comprising a fourth primer, said fourth primer comprising at least 15 consecutive
15 nucleotides of said sequence of one of SEQ ID NO:s 38-270 , and a fifth primer, said fourth and fifth primers being capable of hybridizing to sequences within said first PCR product; and

performing a second polymerase chain reaction, thereby generating a second PCR product.

20 22. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270, or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 21.

23. The cDNA of Claim 22 wherein said cDNA comprises the full protein coding
25 sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

24. The method of Claim 18 wherein the second cDNA strand is made by:

contacting said first cDNA strand with a second primer comprising at least 15 consecutive nucleotides of the sequences of SEQ ID NOs: 38-270;

hybridizing said second primer to said first strand cDNA; and

30 extending said hybridized second primer to generate said second cDNA strand.

25. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein partially encoded by one of SEQ ID NOs 38-270 or comprising a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 24.

5 26. The cDNA of Claim 25, wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

27. A method of making a protein comprising one of the sequences of SEQ ID NO: 271-503, comprising the steps of:

10 obtaining a cDNA encoding the full protein sequence partially included in one of the sequences of sequence of SEQ ID NO: 38-270;

 inserting said cDNA in an expression vector such that said cDNA is operably linked to a promoter;

 introducing said expression vector into a host cell whereby said host cell produces the protein encoded by said cDNA; and

15 isolating said protein.

28. An isolated protein obtainable by the method of Claim 27.

29. A method of obtaining a promoter DNA comprising the steps of:

 obtaining DNAs located upstream of the nucleic acids of SEQ ID NO: 38-270 or the sequences complementary thereto;

20 screening said upstream DNAs to identify a promoter capable of directing transcription initiation; and

 isolating said DNA comprising said identified promoter.

30. The method of Claim 29, wherein said obtaining step comprises chromosome walking from said nucleic acids of SEQ ID NO: 38-270 or sequences complementary thereto.

25 31. The method of Claim 30, wherein said screening step comprises inserting said upstream sequences into a promoter reporter vector.

32. The method of Claim 30, wherein said screening step comprises identifying motifs in said upstream DNAs which are transcription factor binding sites or transcription start sites.

30 33. An isolated promoter obtainable by the method of Claim 32.

34. An isolated or purified protein comprising one of the sequences of SEQ ID NO: 271-503.

5 35. In an array of discrete ESTs or fragments thereof of at least 15 nucleotides in length, the improvement comprising inclusion in said array of at least one of the sequences of SEQ ID NOs: 38-270, or one of the sequences complementary to the sequences of SEQ ID NOs: 38-270, or a fragment thereof of at least 15 consecutive nucleotides.

36. The array of Claim 35 including therein at least two of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of at least 15 consecutive nucleotides.

10 37. The array of Claim 35 including therein at least five of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of at least 15 consecutive nucleotides.

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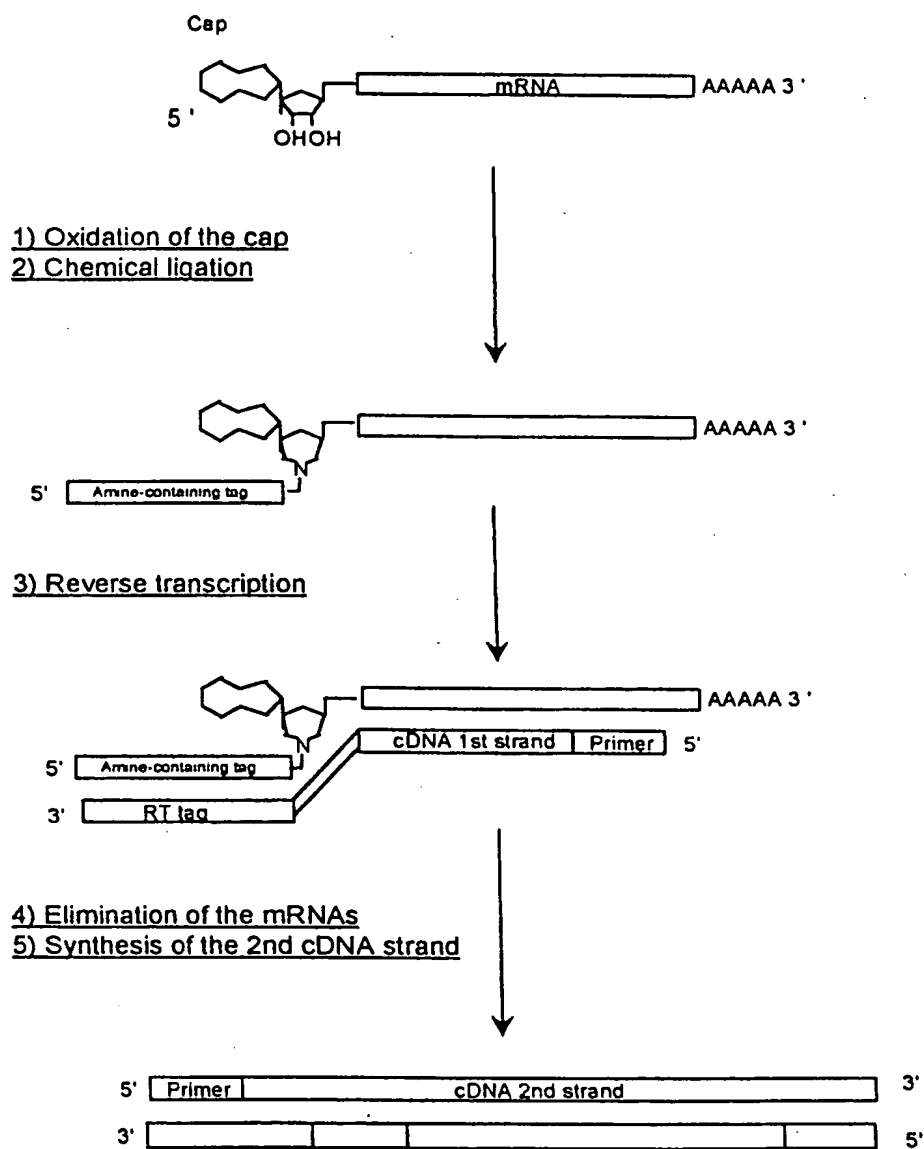


Figure 1

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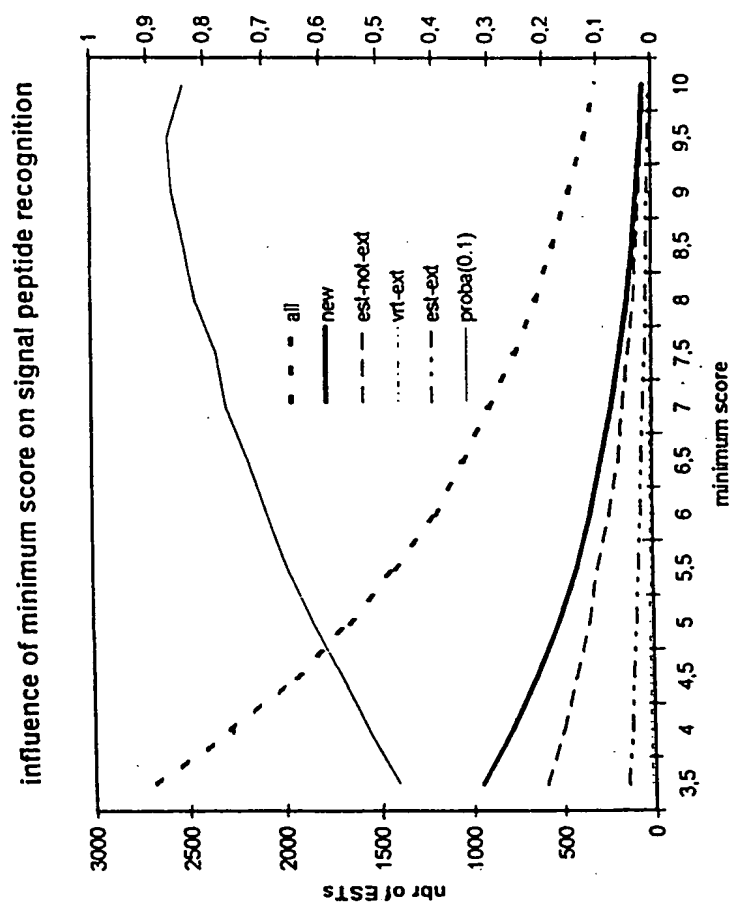


Figure 2

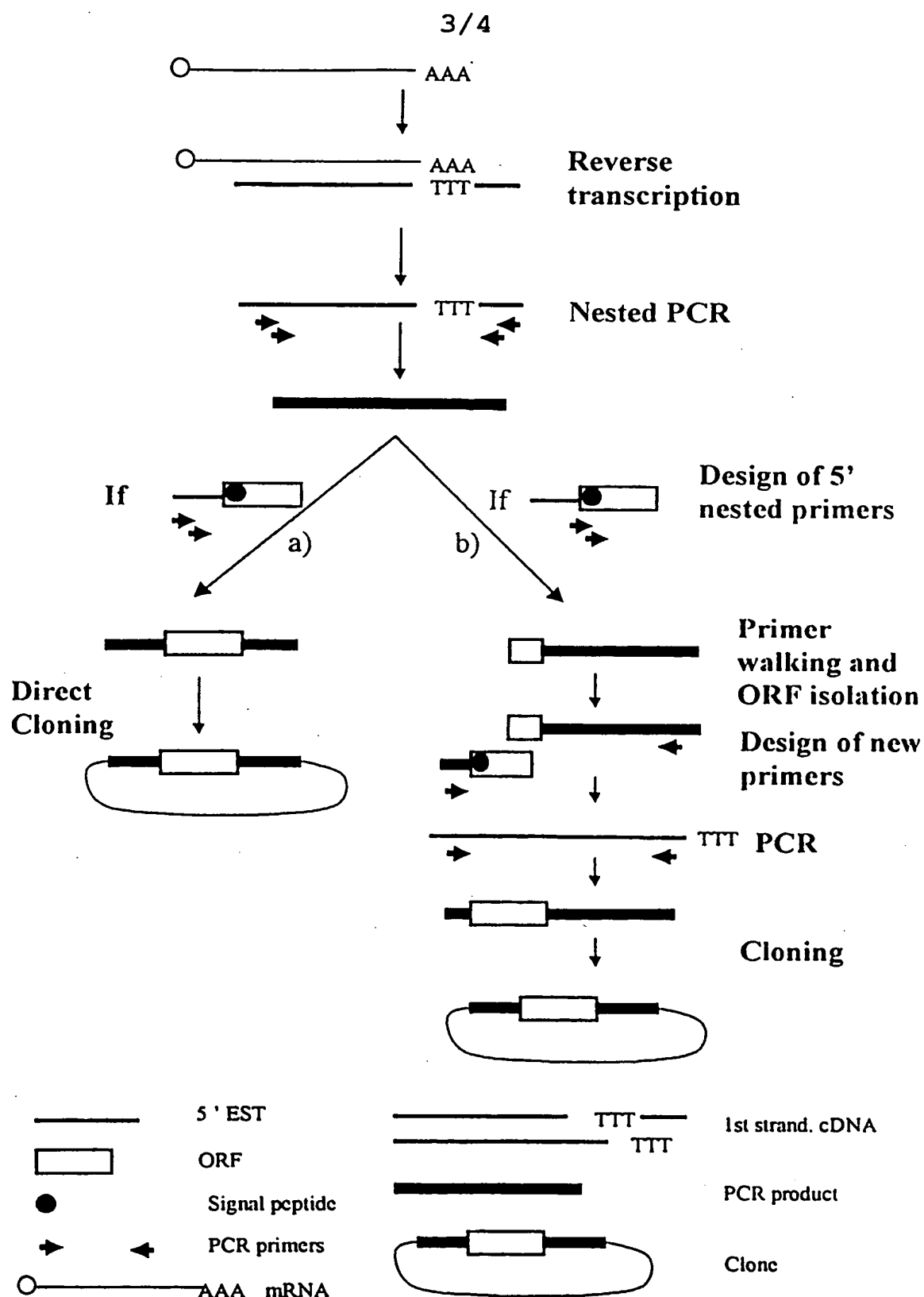
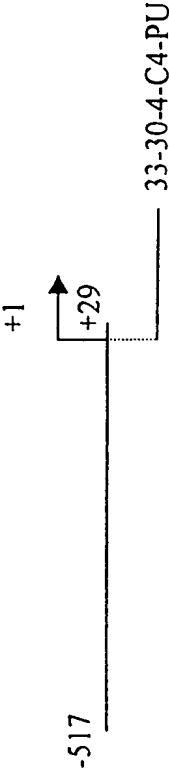


Figure 3

Promoter P13H2



Promoter P15B4



Promoter P29B6

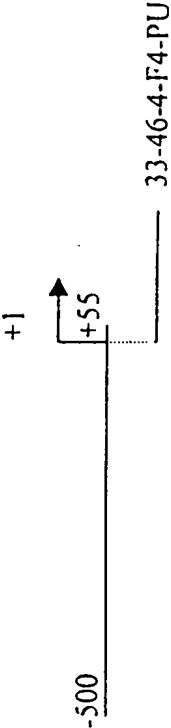


Figure 4

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

- (A) NAME : GENSET SA
- (B) STREET : 24, RUE ROYALE
- (C) CITY: PARIS
- (E) COUNTRY : FRANCE
- (F) POSTAL CODE (ZIP) : 75008

(ii) TITLE OF INVENTION: 5' EST FOR SECRETED PROTEINS EXPRESSED IN BRAIN

(iii) NUMBER OF SEQUENCES: 503

(v) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy Disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: Win95
- (D) SOFTWARE: Word

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(ix) FEATURE:

- (A) NAME/KEY: Cap
- (B) LOCATION: 1
- (D) OTHER INFORMATION: m7Gppp added to 1

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

GGCAUCCUAC UCCCAUCCAA UCCACCCUA ACUCCUCCCA UCUCCAC

47

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

GCAUCCUACU CCCAUCCAAU UCCACCCUAA CUCCUCCCAU CUCCAC

46

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

ATCAAGAATT CGCACGAGAC CATT

25

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

TAATGGTCTC GTGCGAATTC TTGAT

25

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

CCGACAAGAC CAACGTCAAG GCCGC

25

(2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

TCACCAGCAG GCAGTGGCTT AGGAG

25

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

AGTGATTCCT GCTACTTTGG ATGGC

25

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

GCTTGGTCTT GTTCTGGAGT TTAGA

25

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

TCCAGAATGG GAGACAAGCC AATTT

25

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

AGGGAGGAGG AACAGCGTG AGTCC

25

(2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

ATGGGAAAGG AAAAGACTCA TATCA

25

(2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

AGCAGCAACA ATCAGGACAG CACAG

25

(2) INFORMATION FOR SEQ ID NO: 13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

ATCAAGAATT CGCACGAGAC CATTA

25

(2) INFORMATION FOR SEQ ID NO: 14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 67 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

ATCGTTGAGA CTCGTACCAG CAGAGTCACG AGAGAGACTA CACGGTACTG GTTTTTTTTTT

60

TTTTTVN

67

(2) INFORMATION FOR SEQ ID NO: 15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

CCAGCAGAGT CACGAGAGAG ACTACACGG

29

(2) INFORMATION FOR SEQ ID NO: 16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

CACGAGAGAG ACTACACGGT ACTGG

25

(2) INFORMATION FOR SEQ ID NO: 17:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 526 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: CDNA
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Lymph ganglia
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: complement(261..376)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 96
 region 166..281
 id N70479
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: complement(380..486)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 54..160
 id N70479
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: complement(110..145)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 94
 region 403..438
 id N70479
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: complement(196..229)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 94
 region 315..348
 id N70479
 est
- (ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 90..140
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 8.2
 seq LLLITAILAVAVG/FP
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

```

GAGAGAAAGA ACTGACTGAR ACGTTTGAG ATG AAG AAA GTT CTC CTC CTG ATC      113
                               Met Lys Lys Val Leu Leu Leu Ile
                               -15                               -10

ACA GCC ATC TTG GCA GTG GCT GTW GGT TTC CCA GTC TCT CAA GAC CAG      161
Thr Ala Ile Leu Ala Val Ala Val Gly Phe Pro Val Ser Gln Asp Gln
                               -5                               1                               5

GAA CGA GAA AAA AGA AGT ATC AGT GAC AGC GAT GAA TTA GCT TCA GGR      209
Glu Arg Glu Lys Arg Ser Ile Ser Asp Ser Asp Glu Leu Ala Ser Gly
                               10                               15                               20

WTT TTT GTG TTC CCT TAC CCA TAT CCA TTT CGC CCA CTT CCA CCA ATT      257
Xaa Phe Val Phe Pro Tyr Pro Tyr Pro Phe Arg Pro Leu Pro Pro Ile
                               25                               30                               35

CCA TTT CCA AGA TTT CCA TGG TTT AGA CGT AAN TTT CCT ATT CCA ATA      305
Pro Phe Pro Arg Phe Pro Trp Phe Arg Arg Xaa Phe Pro Ile Pro Ile
                               40                               45                               50                               55

CCT GAA TCT GCC CCT ACA ACT CCC CTT CCT AGC GAA AAG TAAACAARAA      354
Pro Glu Ser Ala Pro Thr Thr Pro Leu Pro Ser Glu Lys
                               60                               65

GGAAAAGTCA CRATAAACCT GGTCACCTGA AATTGAAATT GAGCCACTTC CTTGAARAAT      414

CAAAATTCCT GTTAATAAAA RAAAAACAAA TGTAATTGAA ATAGCACACA GCATTCTCTA      474

GTCAATATCT TTAGTGATCT TCTTTAATAA ACATGAAAGC AAAAAAAAAA AA      526

```

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..17
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.2
seq LLLITAILAVAVG/FP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

```

Met Lys Lys Val Leu Leu Leu Ile Thr Ala Ile Leu Ala Val Ala Val
 1             5             10             15

```

Gly

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 822 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (D) DEVELOPMENTAL STAGE: Fetal
- (F) TISSUE TYPE: kidney

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 260..464
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 153..357
id H57434
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 118..184
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 98..164
id H57434
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 56..113
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 35..92
id H57434
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 454..485
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 348..379
id H57434
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 118..545
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..428
id N27248
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 65..369
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 41..345
id H94779
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 61..399
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 6..344
id H09880
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 408..458
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 355..405
id H09880
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 60..399
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 56..395
id H29351
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 393..432
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 391..430
id H29351
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 346..408
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.5
seq SFLPSALVIWTS/AF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

| | |
|---|-----|
| ACTCCTTTTA GCATAGGGGC TTCGGCGCCA GCGGCCAGCG CTAGTCGGTC TGGTAAGTGC | 60 |
| CTGATGCCGA GTTCCGTCTC TCGCGTCTTT TCCTGGTCCC AGGCAAAGCG GASGNAGATC | 120 |
| CTCPAACGGC CTAGTGCTTC GCGCTTCCGG AGAAAATCAG CGGTCTAATT AATTCCTCTG | 180 |
| GTTTSTTGAA GCAGTTACCA AGAATCTTCA ACCCTTTCCC ACAAAGCTA ATTGAGTACA | 240 |

```

CGTTCCTGTT GAGTACACGT TCCTGTTGAT TTACAAAAGG TGCAGGTATG AGCAGGTCTG      300
AAGACTAACA TTTTGTGAAG TTGTAAACA GAAAACCTGT TAGAA ATG TGG TGG TTT      357
                                     Met Trp Trp Phe
                                     -20
CAG CAA GGC CTC AGT TTC CTT CCT TCA GCC CTT GTA ATT TGG ACA TCT      405
Gln Gln Gly Leu Ser Phe Leu Pro Ser Ala Leu Val Ile Trp Thr Ser
      -15                      -10                      -5
GCT GCT TTC ATA TTT TCA TAC ATT ACT GCA GTA ACA CTC CAC CAT ATA      453
Ala Ala Phe Ile Phe Ser Tyr Ile Thr Ala Val Thr Leu His His Ile
      1         5                      10                      15
GAC CCG GCT TTA CCT TAT ATC AGT GAC ACT GGT ACA GTA GCT CCA RAA      501
Asp Pro Ala Leu Pro Tyr Ile Ser Asp Thr Gly Thr Val Ala Pro Xaa
              20                      25                      30
AAA TGC TTA TTT GGG GCA ATG CTA AAT ATT GCG GCA GTT TTA TGT CAA      549
Lys Cys Leu Phe Gly Ala Met Leu Asn Ile Ala Ala Val Leu Cys Gln
              35                      40                      45
AAA TAGAAATCAG GAARATAATT CAACTTAAAG AAKTTCATTT CATGACCAA      602
Lys
CTCTTCARAA ACATGTCTTT ACAAGCATAT CTCTTGTATT GCTTTCTACA CTGTTGAATT      662
GTCTGGCAAT ATTTCTGCAG TGGAAAATTT GATTARMTA GTTCTTGACT GATAAATATG      722
GTAAGGTGGG CTTTTCCCC TGTGTAATTG GCTACTATGT CTTACTGAGC CAAGTTGTAW      782
TTTGAAATPA AATGATATGA GAGTGACACA AAAAAAAAAA      822

```

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..21
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5
seq SFLPSALVIWTS/AF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

```

Met Trp Trp Phe Gln Gln Gly Leu Ser Phe Leu Pro Ser Ala Leu Val
 1         5                      10                      15

```

Ile Trp Thr Ser Ala
20

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 405 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: cDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Testis

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(103..398)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..296
id AA442893
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 185..295
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq LSYASSALSPCLT/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

```

ATCACCTTCT TCTCCATCCT TSTCTGGGCC AGTCCCCARC CCAGTCCCTC TCCTGACCTG      60
CCCAGCCCAA GTCAGCCTTC AGCACGCGCT TTTCTGCACA CAGATATTCC AGGCCTACCT      120
GGCATTCAG GACCTCCGMA ATGATGCTCC AGTCCCTTAC AAGCGCTTCC TGGATGAGGG      180
TGGC ATG GTG CTG ACC ACC CTC CCC TTG CCC TCT GCC AAC AGC CCT GTG      229
Met Val Leu Thr Thr Leu Pro Leu Pro Ser Ala Asn Ser Pro Val
      -35                      -30                      -25

AAC ATG CCC ACC ACT GGC CCC AAC AGC CTG AGT TAT GCT AGC TCT GCC      277
Asn Met Pro Thr Thr Gly Pro Asn Ser Leu Ser Tyr Ala Ser Ser Ala
      -20                      -15                      -10

CTG TCC CCC TGT CTG ACC GCT CCA AAK TCC CCC CGG CTT GCT ATG ATG      325
Leu Ser Pro Cys Leu Thr Ala Pro Xaa Ser Pro Arg Leu Ala Met Met
      -5                      1                      5                      10

CCT GAC AAC TAAATATCCT TATCCAAATC AATAAARWRA RAATCCTCCC TCCARAAGGG      384
Pro Asp Asn

```

TTTCTAAAAA CAAAAAAAAA A

405

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 37 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..37
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq LSYASSALSPCLT/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

Met Val Leu Thr Thr Leu Pro Leu Pro Ser Ala Asn Ser Pro Val Asn
1 5 10 15
Met Pro Thr Thr Gly Pro Asn Ser Leu Ser Tyr Ala Ser Ser Ala Leu
20 25 30
Ser Pro Cys Leu Thr
35

(2) INFORMATION FOR SEQ ID NO: 23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Cancerous prostate

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 149..331
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..183
id AA397994
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 328..485
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 179..336
id AA397994
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(182..496)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 14..328
id AA399680
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 196..240
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.5
seq ILSTVTALTFXA/LD

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

| | |
|--|-----|
| AAAAAATTGG TCCCAGTTTT CACCCTGCCG CAGGGCTGGC TGGGGAGGGC AGCGGTTTAG | 60 |
| ATTAGCCGTG GCCTAGGCCG TTTAACGGGG TGACACGAGC NTGCAGGGCC GAGTCCAAGG | 120 |
| CCCGGAGATA GGACCAACCG TCAGGAATGC GAGGAATGTT TTTCTTCGGA CTCTATCGAG | 180 |
| GCACACAGAC AGACC ATG GGG ATT CTG TCT ACA GTG ACA GCC TTA ACA TTT | 231 |
| Met Gly Ile Leu Ser Thr Val Thr Ala Leu Thr Phe | |
| -15 -10 -5 | |
| GCC ARA GCC CTG GAC GGC TGC AGA AAT GGC ATT GCC CAC CCT GCA AGT | 279 |
| Ala Xaa Ala Leu Asp Gly Cys Arg Asn Gly Ile Ala His Pro Ala Ser | |
| 1 5 10 | |
| GAG AAG CAC AGA CTC GAG AAA TGT AGG GAA CTC GAG ASC ASC CAC TCG | 327 |
| Glu Lys His Arg Leu Glu Lys Cys Arg Glu Leu Glu Xaa Xaa His Ser | |
| 15 20 25 | |
| GCC CCA GGA TCA ACC CAS CAC CGA AGA AAA ACA ACC AGA AGA AAT TAT | 375 |
| Ala Pro Gly Ser Thr Xaa His Arg Arg Lys Thr Thr Arg Arg Asn Tyr | |
| 30 35 40 45 | |
| TCT TCA GCC TGAAATGAAK CCGGGATCAA ATGGTTGCTG ATCARAGCCC ATATTTAAAT | 434 |
| Ser Ser Ala | |
| TGGAAAAGTC AAATTGASCA TTATTAAATA AAGCTTGTTT AATATGTCTC AAACAAAAA | 494 |
| AA | 496 |

(2) INFORMATION FOR SEQ ID NO: 24:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: PROTEIN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
- (ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 1..15
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.5
 seq ILSTVTALTFFAXA/LD
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

Met Gly Ile Leu Ser Thr Val Thr Ala Leu Thr Phe Ala Xaa Ala
 1 5 10 15

(2) INFORMATION FOR SEQ ID NO: 25:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 623 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: CDNA
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Testis
- (ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 49..96
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 10.1
 seq LVLTLCTLPLAVA/SA
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

AAAGATCCCT GCAGCCCGGC AGGAGAGAAG GCTGAGCCTT CTGGCGTC ATG GAG AGG 57
 Met Glu Arg
 -15

CTC GTC CTA ACC CTG TGC ACC CTC CCG CTG GCT GTG GCG TCT GCT GGC 105
 Leu Val Leu Thr Leu Cys Thr Leu Pro Leu Ala Val Ala Ser Ala Gly
 -10 -5 1

TGC GCC ACG ACG CCA GCT CGC AAC CTG AGC TGC TAC CAG TGC TTC AAG 153
 Cys Ala Thr Thr Pro Ala Arg Asn Leu Ser Cys Tyr Gln Cys Phe Lys
 5 10 15

| | |
|---|-----|
| GTC AGC AGC TGG ACG GAG TGC CCG CCC ACC TGG TGC AGC CCG CTG GAC | 201 |
| Val Ser Ser Trp Thr Glu Cys Pro Pro Thr Trp Cys Ser Pro Leu Asp | |
| 20 25 30 35 | |
| CAA GTC TGC ATC TCC AAC GAG GTG GTC GTC TCT TTT AAA TGG AGT GTA | 249 |
| Gln Val Cys Ile Ser Asn Glu Val Val Val Ser Phe Lys Trp Ser Val | |
| 40 45 50 | |
| CGC GTC CTG CTC AGC AAA CGC TGT GCT CCC AGA TGT CCC AAC GAC AAC | 297 |
| Arg Val Leu Leu Ser Lys Arg Cys Ala Pro Arg Cys Pro Asn Asp Asn | |
| 55 60 65 | |
| ATG AAK TTC GAA TGG TCG CCG GCC CCC ATG GTG CAA GGC GTG ATC ACC | 345 |
| Met Xaa Phe Glu Trp Ser Pro Ala Pro Met Val Gln Gly Val Ile Thr | |
| 70 75 80 | |
| AGG CGC TGC TGT TCC TGG GCT CTC TGC AAC AGG GCA CTG ACC CCA CAG | 393 |
| Arg Arg Cys Cys Ser Trp Ala Leu Cys Asn Arg Ala Leu Thr Pro Gln | |
| 85 90 95 | |
| GAG GGG CGC TGG GCC CTG CRA GGG GGG CTC CTG CTC CAG GAC CCT TCG | 441 |
| Glu Gly Arg Trp Ala Leu Xaa Gly Gly Leu Leu Leu Gln Asp Pro Ser | |
| 100 105 110 115 | |
| AGG GGC ARA AAA ACC TGG GTG CGG CCA CAG CTG GGG CTC CCA CTC TGC | 489 |
| Arg Gly Xaa Lys Thr Trp Val Arg Pro Gln Leu Gly Leu Pro Leu Cys | |
| 120 125 130 | |
| CTT CCC AWT TCC AAC CCC CTC TGC CCA RGG GAA ACC CAG GAA GGA | 534 |
| Leu Pro Xaa Ser Asn Pro Leu Cys Pro Xaa Glu Thr Gln Glu Gly | |
| 135 140 145 | |
| TAACACTGTG GGTGCCCCCA CCTGTGCATT GGGACCACRA CTTACCCCTC TTGGARACAA | 594 |
| TAAACTCTCA TGCCCCCAAA AAAAAAAAAA | 623 |

(2) INFORMATION FOR SEQ ID NO: 26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..16
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.1
seq LVLTLCPLAVA/SA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

Met Glu Arg Leu Val Leu Thr Leu Cys Thr Leu Pro Leu Ala Val Ala

1

5

10

15

(2) INFORMATION FOR SEQ ID NO: 27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 848 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (D) DEVELOPMENTAL STAGE: Fetal
- (F) TISSUE TYPE: kidney

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 32..73
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.7
seq LWLLFFLVTAIHA/EL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

| | |
|--|-----|
| AACTTTGCCT TGTGTTTTCC ACCCTGAAAG A ATG TTG TGG CTG CTC TTT TTT CTG | 55 |
| Met Leu Trp Leu Leu Phe Phe Leu | |
| -10 | |
| GTG ACT GCC ATT CAT GCT GAA CTC TGT CAA CCA GGT GCA GAA AAT GCT | 103 |
| Val Thr Ala Ile His Ala Glu Leu Cys Gln Pro Gly Ala Glu Asn Ala | |
| -5 1 5 10 | |
| TTT AAA GTG AGA CTT AGT ATC AGA ACA GCT CTG GGA GAT AAA GCA TAT | 151 |
| Phe Lys Val Arg Leu Ser Ile Arg Thr Ala Leu Gly Asp Lys Ala Tyr | |
| 15 20 25 | |
| GCC TGG GAT ACC AAT GAA GAA TAC CTC TTC AAA GCG ATG GTA GCT TTC | 199 |
| Ala Trp Asp Thr Asn Glu Glu Tyr Leu Phe Lys Ala Met Val Ala Phe | |
| 30 35 40 | |
| TCC ATG AGA AAA GTT CCC AAC AGA GAA GCA ACA GAA ATT TCC CAT GTC | 247 |
| Ser Met Arg Lys Val Pro Asn Arg Glu Ala Thr Glu Ile Ser His Val | |
| 45 50 55 | |
| CTA CTT TGC AAT GTA ACC CAG AGG GTA TCA TTC TGG TTT GTG GTT ACA | 295 |
| Leu Leu Cys Asn Val Thr Gln Arg Val Ser Phe Trp Phe Val Val Thr | |
| 60 65 70 | |
| GAC CCT TCA AAA AAT CAC ACC CTT CCT GCT GTT GAG GTG CAA TCA GCC | 343 |
| Asp Pro Ser Lys Asn His Thr Leu Pro Ala Val Glu Val Gln Ser Ala | |
| 75 80 85 90 | |
| ATA AGA ATG AAC AAG AAC CGG ATC AAC AAT GCC TTC TTT CTA AAT GAC | 391 |
| Ile Arg Met Asn Lys Asn Arg Ile Asn Asn Ala Phe Phe Leu Asn Asp | |
| 95 100 105 | |

| | |
|--|-----|
| CAA ACT CTG GAA TTT TTA AAA ATC CCT TCC ACA CTT GCA CCA CCC ATG | 439 |
| Gln Thr Leu Glu Phe Leu Lys Ile Pro Ser Thr Leu Ala Pro Pro Met | |
| 110 115 120 | |
| GAC CCA TCT GTG CCC ATC TGG ATT ATT ATA TTT GGT GTG ATA TTT TGC | 487 |
| Asp Pro Ser Val Pro Ile Trp Ile Ile Ile Phe Gly Val Ile Phe Cys | |
| 125 130 135 | |
| ATC ATC ATA GTT GCA ATT GCA CTA CTG ATT TTA TCA GGG ATC TGG CAA | 535 |
| Ile Ile Ile Val Ala Ile Ala Leu Leu Ile Leu Ser Gly Ile Trp Gln | |
| 140 145 150 | |
| CGT ADA ARA AAG AAC AAA GAA CCA TCT GAA GTG GAT GAC GCT GAA RAT | 583 |
| Arg Xaa Xaa Lys Asn Lys Glu Pro Ser Glu Val Asp Asp Ala Glu Xaa | |
| 155 160 165 170 | |
| AAK TGT GAA AAC ATG ATC ACA ATT GAA AAT GGC ATC CCC TCT GAT CCC | 631 |
| Xaa Cys Glu Asn Met Ile Thr Ile Glu Asn Gly Ile Pro Ser Asp Pro | |
| 175 180 185 | |
| CTG GAC ATG AAG GGA GGG CAT ATT AAT GAT GCC TTC ATG ACA GAG GAT | 679 |
| Leu Asp Met Lys Gly Gly His Ile Asn Asp Ala Phe Met Thr Glu Asp | |
| 190 195 200 | |
| GAG AGG CTC ACC CCT CTC TGAAGGGCTG TTGTTCTGCT TCCTCAARAA | 727 |
| Glu Arg Leu Thr Pro Leu | |
| 205 | |
| ATTAAACATT TGTTTCTGTG TGA CTGCTGA GCATCCTGAA ATACCAAGAG CAGATCATAT | 787 |
| WTTTGTGTTT ACCATTCTTC TTTTGTAAATA AATTTTGAAT GTGCTTGAAA AAAAAAAAAA | 847 |
| C | 848 |

(2) INFORMATION FOR SEQ ID NO: 28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..14
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.7
seq LWLLFFLVTAIHA/EL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

Met Leu Trp Leu Leu Phe Phe Leu Val Thr Ala Ile His Ala
 1 5 10

(2) INFORMATION FOR SEQ ID NO: 29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

GGGAAGATGG AGATAGTATT GCCTG

25

(2) INFORMATION FOR SEQ ID NO: 30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

CTGCCATGTA CATGATAGAG AGATTG

26

(2) INFORMATION FOR SEQ ID NO: 31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 546 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Genomic DNA

(ix) FEATURE:

- (A) NAME/KEY: promoter
- (B) LOCATION: 1..517

(ix) FEATURE:

- (A) NAME/KEY: transcription start site
- (B) LOCATION: 518

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 17..25
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name CMYB_01
score 0.983
sequence TGTCAGTTG

- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: complement(18..27)
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name MYOD_Q6
 score 0.961
 sequence CCCAACTGAC
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: complement(75..85)
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name S8_01
 score 0.960
 sequence AATAGAATTAG
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: 94..104
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name S8_01
 score 0.966
 sequence AACTAAATTAG
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: complement(129..139)
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name DELTAEF1_01
 score 0.960
 sequence GCACACCTCAG
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: complement(155..165)
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name GATA_C
 score 0.964
 sequence AGATAAATCCA
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: 170..178
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name CMYB_01
 score 0.958
 sequence CTTCAGTTG
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: 176..189
 (C) IDENTIFICATION METHOD: matinspector prediction
 (D) OTHER INFORMATION: name GATA1_02
 score 0.959
 sequence TTGTAGATAGGACA
- (ix) FEATURE:
 (A) NAME/KEY: TF binding-site
 (B) LOCATION: 180..190
 (C) IDENTIFICATION METHOD: matinspector prediction

(D) OTHER INFORMATION: name GATA_C
score 0.953
sequence AGATAGGACAT

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 284..299
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name TAL1ALPHA47_01
score 0.973
sequence CATAACAGATGGTAAG

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 284..299
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name TAL1BETAE47_01
score 0.983
sequence CATAACAGATGGTAAG

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 284..299
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name TAL1BETAITF2_01
score 0.978
sequence CATAACAGATGGTAAG

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(287..296)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MYOD_Q6
score 0.954
sequence ACCATCTGTT

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(302..314)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name GATA1_04
score 0.953
sequence TCAAGATAAAGTA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 393..405
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name IK1_01
score 0.963
sequence AGTTGGGAATTCC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 393..404
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name IK2_01
score 0.985
sequence AGTTGGGAATTC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 396..405
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name CREL_01
score 0.962
sequence TGGGAATTCC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 423..436
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name GATA1_02
score 0.950
sequence TCAGTGATATGGCA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(478..489)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name SRY_02
score 0.951
sequence TAAACAAAAACA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 486..493
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name E2F_02
score 0.957
sequence TTTAGCGC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(514..521)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MZF1_01
score 0.975
sequence TGAGGGGA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| TGAGTGCAGT | GTTACATGTC | AGTTGGGTTA | AGTTTGTAA | TGTCATTCAA | ATCTTCTATG | 60 |
| TCTTGATTTG | CCTGCTAATT | CTATTATTTT | TGGAACATAA | TTAGTTTGAT | GGTTCTATTA | 120 |
| GTTATTGACT | GAGGTGTGCT | AATCTCCCAT | TATGTGGATT | TATCTATTTT | TTCAGTTGTA | 180 |
| GATAGGACAT | TGATAGATAC | ATAAGTACCA | GGACAAAAGC | AGGGAGATCT | TTTTTCCAAA | 240 |
| ATCAGGAGAA | AAAAATGACA | TCTGGAAAAC | CTATAGGGAA | AGGCATAACA | GATGGTAAGG | 300 |
| ATACTTTATC | TTGAGTAGGA | GAGCCTTCCT | GTGGCAACGT | GGAGAAGGGA | AGAGGTCGTA | 360 |
| GAATTGAGGA | GTCAGCTCAG | TTAGAAGCAG | GGAGTTGGGA | ATTCCGTTCA | TGTGATTTAG | 420 |
| CATCAGTGAT | ATGGCAAATG | TGGGACTAAG | GGTAGTGATC | AGAGGGTTAA | AATTGTGTGT | 480 |
| TTTGTTTTAG | CGCTGCTGGG | GCATCGCCTT | GGGTCCCCTC | AAACAGATTC | CCATGAATCT | 540 |
| CTTCAT | | | | | | 546 |

(2) INFORMATION FOR SEQ ID NO: 32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

GTACCAGGGA CTGTGACCAT TGC

23

(2) INFORMATION FOR SEQ ID NO: 33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

CTGTGACCAT TGCTCCCAAG AGAG

24

(2) INFORMATION FOR SEQ ID NO: 34:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 861 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Genomic DNA

(ix) FEATURE:

- (A) NAME/KEY: promoter
- (B) LOCATION: 1..806

(ix) FEATURE:

- (A) NAME/KEY: transcription start site
- (B) LOCATION: 807

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(60..70)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name NFY_Q6
score 0.956

sequence GGACCAATCAT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 70..77
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name MZF1_01
score 0.962
sequence CCTGGGGA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 124..132
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name CMYB_01
score 0.994
sequence TGACCGTTG

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(126..134)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name VMYB_02
score 0.985
sequence TCCAACGGT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 135..143
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name STAT_01
score 0.968
sequence TTCCTGGAA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(135..143)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name STAT_01
score 0.951
sequence TTCCAGGAA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(252..259)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name MZF1_01
score 0.956
sequence TTGGGGGA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 357..368
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name IK2_01
score 0.965
sequence GAATGGGATTTC

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 384..391

(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MZF1_01
score 0.986
sequence AGAGGGGA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(410..421)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name SRY_02
score 0.955
sequence GAAAACAAAACA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 592..599
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MZF1_01
score 0.960
sequence GAAGGGGA

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 618..627
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MYOD_Q6
score 0.981
sequence AGCATCTGCC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: 632..642
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name DELTAEF1_01
score 0.958
sequence TCCCACCTTCC

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(813..823)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name S8_01
score 0.992
sequence GAGGCAATTAT

(ix) FEATURE:

(A) NAME/KEY: TF binding-site
(B) LOCATION: complement(824..831)
(C) IDENTIFICATION METHOD: matinspector prediction
(D) OTHER INFORMATION: name MZF1_01
score 0.986
sequence AGAGGGGA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

TACTATAGGG CACGCGTGGT CGACGGCCGG GCTGTTCTGG AGCAGAGGGC ATGTCAGTAA 60
TGATTGGTCC CTGGGGAAGG TCTGGCTGGC TCCAGCACAG TGAGGCATTT AGGTATCTCT 120
CGGTGACCGT TGGATTCCTG GAAGCAGTAG CTGTTCTGTT TGGATCTGGT AGGGACAGGG 180

```

CTCAGAGGGC TAGGCACGAG GGAAGGTCAG AGGAGAAGGS AGGSARGGCC CAGTGAGARG 240
GGAGCATGCC TTCCCCAAC CCTGGCTTSC YCTTGGYMAM AGGGCGKTTY TGGGMACTTR 300
AAYTCAGGGC CCAASCAGAA SCACAGGCC AKTCNTGGCT SMAAGCACAA TAGCCTGAAT 360
GGGATTTTCAG GTTAGNCAGG GTGAGAGGGG AGGCTCTCTG GCTTAGTTTT GTTTTGTTTT 420
CCAAATCAAG GTAACCTGCT CCCTTCTGCT ACGGGCCTTG GTCTTGGCTT GTCCTCACCC 480
AGTCGGAACCT CCCTACCACT TTCAGGAGAG TGGTTTTAGG CCCGTGGGGC TGTCTGTTC 540
CAAGCAGTGT GAGAACATGG CTGGTAGAGG CTCTAGCTGT GTGCGGGGCC TGAAGGGGAG 600
TGGGTTCTCG CCCAAAGAGC ATCTGCCCAT TTCCACCTT CCCTTCTCCC ACCAGAAGCT 660
TGCCTGAGCT GTTTGGACAA AAATCCAAAC CCCACTTGGC TACTCTGGCC TGGCTTCAGC 720
TTGGAACCCA ATACCTAGGC TTACAGGCCA TCCTGAGCCA GGGGCCTCTG GAAATTCTCT 780
TCCTGATGGT CCTTTAGGTT TGGGCACAAA ATATAATTGC CTCTCCCCTC TCCCATTTTC 840
TCTCTTGGGA GCAATGGTCA C 861

```

(2) INFORMATION FOR SEQ ID NO: 35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

CTGGGATGGA AGGCACGGTA

20

(2) INFORMATION FOR SEQ ID NO: 36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Other nucleic acid

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

GAGACCACAC AGCTAGACAA

20

(2) INFORMATION FOR SEQ ID NO: 37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Genomic DNA

(ix) FEATURE:

- (A) NAME/KEY: promoter
- (B) LOCATION: 1..500

(ix) FEATURE:

- (A) NAME/KEY: transcription start site
- (B) LOCATION: 501

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 191..206
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name ARNT_01
score 0.964
sequence GGACTCACGTGCTGCT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 193..204
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name NMYC_01
score 0.965
sequence ACTCACGTGCTG

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 193..204
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name USF_01
score 0.985
sequence ACTCACGTGCTG

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(193..204)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name USF_01
score 0.985
sequence CAGCACGTGAGT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(193..204)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name NMYC_01
score 0.956
sequence CAGCACGTGAGT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(193..204)

- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name MYCMAX_02
score 0.972
sequence CAGCACGTGAGT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 195..202
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name USF_C
score 0.997
sequence TCACGTGC

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(195..202)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name USF_C
score 0.991
sequence GCACGTGA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(210..217)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name MZF1_01
score 0.968
sequence CATGGGGA

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 397..410
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name ELK1_02
score 0.963
sequence CTCTCCGGAAGCCT

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 400..409
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name CETS1P54_01
score 0.974
sequence TCCGGAAGCC

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(460..470)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name AP1_Q4
score 0.963
sequence AGTGACTGAAC

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: complement(460..470)
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name AP1FJ_Q2
score 0.961
sequence AGTGACTGAAC

(ix) FEATURE:

- (A) NAME/KEY: TF binding-site
- (B) LOCATION: 547..555
- (C) IDENTIFICATION METHOD: matinspector prediction
- (D) OTHER INFORMATION: name PADS_C
score 1.000
sequence TGTGGTCTC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

```

CTATAGGGCA CGCKTGGTCG ACGGCCCGGG CTGGTCTGGT CTGTKGTGGA GTCGGGTTGA    60
AGGACAGCAT TTGKACATC TGGTCTACTG CACCTTCCCT CTGCCGTGCA CTTGGCCTTT    120
KAWAAGCTCA GCACCGGTGC CCATCACAGG GCCGGCAGCA CACACATCCC ATTACTCAGA    180
AGGAACTGAC GGA CTCACGT GCTGCTCCGT CCCCATGAGC TCAGTGGACC TGTCTATGTA    240
GAGCAGTCAG ACAGTGCCTG GGATAGAGTG AGAGTTCAGC CAGTAAATCC AAGTGATTGT    300
CATTCTGTG TGCATTAGTA ACTCCCAACC TAGATGTGAA AACTTAGTTC TTTCTCATAG    360
GTTGCTCTGC CCATGGTCCC ACTGCAGACC CAGGCACTCT CCGGAAGCCT GGAAATCACC    420
CGTGTCTTCT GCCTGCTCCC GCTCACATCC CACACTTGTG TTCAGTCACT GAGTTACAGA    480
TTTTGCCTCC TCAATTTCTC TTGTCTTAGT CCCATCCTCT GTTCCCCTGG CCAGTTTGTG    540
TAGCTGTGTG GTCTC                                         555

```

(2) INFORMATION FOR SEQ ID NO: 38:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 155 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 45..86
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.8
seq LLLGLCLGLSLC/VG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

```

AGTGTCCCGC CGGGTCCCGG AGCGTCCCGC GCCCTCGCCC CGCC ATG CTC CTG CTG    56
                               Met Leu Leu Leu
CTG GGG CTG TGC CTG GGG CTG TCC CTG TGT GTG GGG TCG CAG GAA GAG    104

```

Leu Gly Leu Cys Leu Gly Leu Ser Leu Cys Val Gly Ser Gln Glu Glu
 -10 -5 1 5
 GCG CAG AGC TGG GGC CAC TCT TCG GAG CAG GAT GGA CTC AGG GTC CCG 152
 Ala Gln Ser Trp Gly His Ser Ser Glu Gln Asp Gly Leu Arg Val Pro
 10 15 20
 AGG 155
 Arg

(2) INFORMATION FOR SEQ ID NO: 39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 191..268
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.8
seq VLLFFVLLGMSQA/GS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

AAGTACACGC GGMGAAC TGG GAAGACAGAA AGWWCAATCC TTTAAGGGAG AACCTAGAAG 60
 CCATTCAACA AGGTTAAAT CTTTAGGCTT CCGAGGATTT GGTAGACAGA TCAGAGGCAC 120
 GTTTCACACA ACTGCGAAGA GGCGCTGAGG CAATTCTGCA AGAAGATTTT GGGGTTTTGG 180
 AAAAGAAGCT ATG GAA AAC GGA GGG GCA GGC ACT CTG CAG ATA AGG CAA 229
 Met Glu Asn Gly Gly Ala Gly Thr Leu Gln Ile Arg Gln
 -25 -20 -15
 GTC CTG CTT TTC TTT GTT TTG CTG GGA ATG TCT CAG GCG GGC TCT GAA 277
 Val Leu Leu Phe Phe Val Leu Leu Gly Met Ser Gln Ala Gly Ser Glu
 -10 -5 1
 ACT GGG AAC TTT TTG GTG ATG GAG GAA TTG CAG AGC GGG AGC TTT GTA 325
 Thr Gly Asn Phe Leu Val Met Glu Glu Leu Gln Ser Gly Ser Phe Val
 5 10 15
 GGA AAT TTG GCA AAG ACC CTG GGA CTC GAG GTG AGT GAG CTG TCT TCG 373
 Gly Asn Leu Ala Lys Thr Leu Gly Leu Glu Val Ser Glu Leu Ser Ser
 20 25 30 35
 CGG GGG GCT CCG GTG GTT TCT AAT GAT AAC AAA GAG TGT TTG CAG CTG 421
 Arg Gly Ala Arg Val Val Ser Asn Asp Asn Lys Glu Cys Leu Gln Leu
 40 45 50

GAC ACG
Asp Thr

427

(2) INFORMATION FOR SEQ ID NO: 40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 12..389
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10
seq LKLLLFLSTELQA/SQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

| | |
|--|-----|
| AAAAAAGGAC C ATG AGA GGG CCG GAG CCG GGT CCC CAA CCG ACG ATG GAG | 50 |
| Met Arg Gly Pro Glu Pro Gly Pro Gln Pro Thr Met Glu | |
| -125 -120 -115 | |
| GGA GAC GTG CTG GAC ACA CTG GAG GCG CTG GGG TAT AAA GGA CCA TTG | 98 |
| Gly Asp Val Leu Asp Thr Leu Glu Ala Leu Gly Tyr Lys Gly Pro Leu | |
| -110 -105 -100 | |
| TTA GAA GAG CAA GCC CTT ACA AAG GCG GCA GAG GGT GGA TTA TCT TCA | 146 |
| Leu Glu Glu Gln Ala Leu Thr Lys Ala Ala Glu Gly Gly Leu Ser Ser | |
| -95 -90 -85 | |
| CCT GAA TTT TCA GAG CTC TGT ATT TGG TTA GGC TCT CAA ATA AAA TCA | 194 |
| Pro Glu Phe Ser Glu Leu Cys Ile Trp Leu Gly Ser Gln Ile Lys Ser | |
| -80 -75 -70 | |
| TTA TGC AAC TTG GAA GAA AGT ATC ACG TCT GCT GGA AGA GAT GAT CTA | 242 |
| Leu Cys Asn Leu Glu Glu Ser Ile Thr Ser Ala Gly Arg Asp Asp Leu | |
| -65 -60 -55 -50 | |
| GAG AGC TTC CAG CTT GAG ATA AGT GGC TTT TTA AAA GAA ATG GCA TGT | 290 |
| Glu Ser Phe Gln Leu Glu Ile Ser Gly Phe Leu Lys Glu Met Ala Cys | |
| -45 -40 -35 | |
| CCA TAT TCT GTA CTC ATA TCA GGA GAT ATT AAA GAT CGT TTA AAA AAG | 338 |
| Pro Tyr Ser Val Leu Ile Ser Gly Asp Ile Lys Asp Arg Leu Lys Lys | |
| -30 -25 -20 | |
| AAG GAG GAC TGT TTG AAA CTT CTA TTA TTT TTA AGT ACA GAA CTT CAA | 386 |
| Lys Glu Asp Cys Leu Lys Leu Leu Phe Leu Ser Thr Glu Leu Gln | |
| -15 -10 -5 | |

GCT TCA CAG ATA
Ala Ser Gln Ile
1

398

(2) INFORMATION FOR SEQ ID NO: 41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 201 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 70..147
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.6
seq WLIALASWSWALC/RI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

```

AGCCCGGTTT CGTGCCCGCG GCCGACTGCG CASCTGTCCG CGAGTCTGAG ATACTTACAG      60
AGAGCTACA ATG GAA AAG TCC TGG ATG CTG TGG AAC TTT GTT GAA AGA TGG      111
      Met Glu Lys Ser Trp Met Leu Trp Asn Phe Val Glu Arg Trp
      -25                      -20                      -15

CTA ATA GCC TTG GCT TCA TGG TCT TGG GCT CTC TGC CGT ATT TCT CTT      159
Leu Ile Ala Leu Ala Ser Trp Ser Trp Ala Leu Cys Arg Ile Ser Leu
      -10                      -5                      1

TTA CCT TTA ATA GTG ACT TTT CAT CTG TAT GGA GGT TCG GGG      201
Leu Pro Leu Ile Val Thr Phe His Leu Tyr Gly Gly Ser Gly
      5                      10                      15

```

(2) INFORMATION FOR SEQ ID NO: 42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 272 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 6..113
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.5
seq LGLLLARHWCIA/GV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

```

AGATT ATG CAG CAG ACT CGC ACA GAG GCT GTC GCG GGC GCG TTC TCT CAC    50
  Met Gln Gln Thr Arg Thr Glu Ala Val Ala Gly Ala Phe Ser His
    -35                -30                -25

TGC CTG GGC TTC TGT GGA ATG AGA CTC GGG CTC CTT CTA CTT GCA AGA    98
  Cys Leu Gly Phe Cys Gly Met Arg Leu Gly Leu Leu Leu Leu Ala Arg
    -20                -15                -10

CAC TGG TGC ATT GCA GGT GTG TTT CCG CAG AAG TTT GAT GGT GAC AGT   146
  His Trp Cys Ile Ala Gly Val Phe Pro Gln Lys Phe Asp Gly Asp Ser
    -5                 1                 5                 10

GCC TAC GTG GGG ATG AGT GAC GGA AAC CCA GAG CTC CTG TCA ACC AGC   194
  Ala Tyr Val Gly Met Ser Asp Gly Asn Pro Glu Leu Leu Ser Thr Ser
                15                20                25

CAG ACC TAC AAC GGC CAG AGC GAG AAC AAC GAA GAC TAT GAG ATC CCC   242
  Gln Thr Tyr Asn Gly Gln Ser Glu Asn Asn Glu Asp Tyr Glu Ile Pro
                30                35                40

CCG ATA ACA CCT CCC AAC CTC CCG GAA GCG                               272
  Pro Ile Thr Pro Pro Asn Leu Pro Glu Ala
    45                50

```

(2) INFORMATION FOR SEQ ID NO: 43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 186 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 28..99
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.1
seq LVVFLLLPLASGP/QV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

```

ATTTACGTCT TTTCAGTTTT TTTAGAG ATG GAA AAG GGA AAC GCG TTT TTA AAG    54

```

Met Glu Lys Gly Asn Ala Phe Leu Lys
-20

AAT AGG TTA GTT GTT TTT CTT CTC CTG CCC CTA GCA TCA GGA CCA CAG 102
Asn Arg Leu Val Val Phe Leu Leu Leu Pro Leu Ala Ser Gly Pro Gln
-15 -10 -5 1

GTA AAA AGG AAA AGC GAA ATT ACG AAA CTT ATA AAG GCC ACG CGA ATC 150
Val Lys Arg Lys Ser Glu Ile Thr Lys Leu Ile Lys Ala Thr Arg Ile
5 10 15

ATT TGT TTA TTC AAT AAA TTT AGT AGA GGA AAC GGG 186
Ile Cys Leu Phe Asn Lys Phe Ser Arg Gly Asn Gly
20 25

(2) INFORMATION FOR SEQ ID NO: 44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 400 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 164..235
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9
seq LLMLIVFHAASMA/LQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

AGTTAATTTG AACAAATAT AGTAAGTATA CTATTATTTT CCATGTCTTT CTAGGCTTTT 60

TAAACTCTGC AGTGTATTTA CTGTACTCTC GTAGAAGGAG TGCCATCAAC TGCAATTGGT 120

ACAAATTGTG CTTATTTTTC TGCTCTTTTC ACGTTCCCAA AAT ATG TTC CCA TTC 175
Met Phe Pro Phe

AAC CAG GCA GGT CTT CCT ACT CTT CTC ATG CTC ATT GTT TTT CAT GCT 223
Asn-Gln Ala Gly Leu Pro Thr Leu Leu Met Leu Ile Val Phe His Ala
-20 -15 -10 -5

GCT TCC ATG GCT TTA CAG AGA CTC TTC CTC TTC GCT TTG GTC TGG CAT 271
Ala Ser Met Ala Leu Gln Arg Leu Phe Leu Phe Ala Leu Val Trp His
1 5 10

TCA AAA CCC TCA GGA CTG ATG ACA GGC AAA CTA GAA TCT CAA ATT CCC 319
Ser Lys Pro Ser Gly Leu Met Thr Gly Lys Leu Glu Ser Gln Ile Pro
15 20 25

CAT GAA AAG TTG ACT CAT ATC TCT GTC ATG CAT GGT CCC CTC AGT TCC 367

His Glu Lys Leu Thr His Ile Ser Val Met His Gly Pro Leu Ser Ser
 30 35 40

CAT CAC TCA TAC ACT CAC ATA CAT TTA TTT TTA 400
 His His Ser Tyr Thr His Ile His Leu Phe Leu
 45 50 55

(2) INFORMATION FOR SEQ ID NO: 45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 297 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..228
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.8
seq SLLLWMSSLPSLG/EK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

ATG ACT TCA CGT AGC TTG CGT CGC TGC TCC TGT CTC CGT GTA ACT CAC 48
 Met Thr Ser Arg Ser Leu Arg Arg Cys Ser Cys Leu Arg Val Thr His
 -75 -70 -65

AAT AAA GAG ATT TTG GCA TCA ACC GTG AGC TTA GGG GTA GAA GGG TAT 96
 Asn Lys Glu Ile Leu Ala Ser Thr Val Ser Leu Gly Val Glu Gly Tyr
 -60 -55 -50 -45

ATG TTA GGA GGT GGG AGC AGA ATC AAT TCT TCA AAT CTT AAT GAT GGT 144
 Met Leu Gly Gly Gly Ser Arg Ile Asn Ser Ser Asn Leu Asn Asp Gly
 -40 -35 -30

GAA GAA GAG TGC TCA CCA GAT TCC CTT CTG GTC TGG AAA AAG AAA TCC 192
 Glu Glu Glu Cys Ser Pro Asp Ser Leu Leu Val Trp Lys Lys Lys Ser
 -25 -20 -15

CTT CTT TTG TGG ATG TCA TCT CTA CCA TCT CTC GGT GAA AAA TAT TTC 240
 Leu Leu Leu Trp Met Ser Ser Leu Pro Ser Leu Gly Glu Lys Tyr Phe
 -10 -5 1

AAG AGA ATT CTA AGA TGG AGA GAG CAT TGG AAG TCA TCC GGC CCA ATT 288
 Lys Arg Ile Leu Arg Trp Arg Glu His Trp Lys Ser Ser Gly Pro Ile
 5 10 15 20

CCC TTG TGG 297
 Pro Leu Trp

(2) INFORMATION FOR SEQ ID NO: 46:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 213 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 10..168
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.8
seq ILLLLTVLPCIXM/GQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

```

AACTGTAGC ATG TGG ACA GCC AGT GCC ATG GAT TTC AGA ACC TGC ATT GCC      51
      Met Trp Thr Ala Ser Ala Met Asp Phe Arg Thr Cys Ile Ala
                -50                      -45                      -40

AGT KGA CTG CCT GCT TTG TGC TAC GTG CAG GCC TGC CGC GCC CTG ATG      99
Ser Xaa Leu Pro Ala Leu Cys Tyr Val Gln Ala Cys Arg Ala Leu Met
                -35                      -30                      -25

ATT GCT GCC TCG GTC CTG GGT CTG CCG GCC ATT TTA CTG CTG CTG ACT     147
Ile Ala Ala Ser Val Leu Gly Leu Pro Ala Ile Leu Leu Leu Leu Thr
                -20                      -15                      -10

GTT CTT CCC TGC ATC SGG ATG GGC CAG GAG CCC GGT GTG GCT AAG TAC     195
Val Leu Pro Cys Ile Xaa Met Gly Gln Glu Pro Gly Val Ala Lys Tyr
                -5                      1                      5

AGG SGG GCC CAG CTG GCT                                           213
Arg Xaa Ala Gln Leu Ala
    10                      15

```

(2) INFORMATION FOR SEQ ID NO: 47:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 319 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 62..196
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.5
seq FALLSLSHPTCQA/GA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

```

ATTGGTGCAG AGGCCCTTCT TGTCTCCACA CCAGAAGGAG CTGAGCAGAG GGGCCACAGC      60
G ATG GGA CCC CCT CCA ACC CAC ATT AAA TAC CTC CAC CTG AAT ATT TAT      109
  Met Gly Pro Pro Pro Thr His Ile Lys Tyr Leu His Leu Asn Ile Tyr
   -45                -40                -35                -30

TGC AAC GGC AAG AGC ACT GCA CCT GGA ATC CGG TCT CAC AGC CTT GGA      157
Cys Asn Gly Lys Ser Thr Ala Pro Gly Ile Arg Ser His Ser Leu Gly
                -25                -20                -15

TTT GCC TTG CTA AGC CTC AGT CAT CCA ACC TGC CAG GCA GGT GCA CCT      205
Phe Ala Leu Leu Ser Leu Ser His Pro Thr Cys Gln Ala Gly Ala Pro
                -10                -5                1

GCC GCA GCC CTG CCT TCT CTG TGG AGC TGG TGC TCT CGG GGT GCA CGA      253
Ala Ala Ala Leu Pro Ser Leu Trp Ser Trp Cys Ser Arg Gly Ala Arg
   5                10                15

GTC AGG GTT GGG AGG ATG CTT TCT CAC CTG TAC ACC TGT GGA TGG TAC      301
Val Arg Val Gly Arg Met Leu Ser His Leu Tyr Thr Cys Gly Trp Tyr
  20                25                30                35

GAT CAC AAC CCC CAT GGG      319
Asp His Asn Pro His Gly
                40

```

(2) INFORMATION FOR SEQ ID NO: 48:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 260 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 204..251
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.5
seq LLTFLAFTTLLFA/PP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

| | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|
| ACTGTTATTC | TTCACATATT | ATCTCTATTA | GTADVWGGCT | TCTAGTCACC | CAAGTTAGAA | 60 | | | | | | | |
| ATCTGTGAGT | CATCTTTTGT | TTCTTCCCTT | TCCCTTACTG | TTTAGTTTTA | ATTGCTAAGT | 120 | | | | | | | |
| CTTGTTAATA | CTACATCAGG | TATGATTTTA | AAAACATTTT | TGATGTTCTA | CTGCCACCAC | 180 | | | | | | | |
| CTTAGTTC | GTACTCATTT | TGC | ATG | TTT | TGT | CTT | TTG | ACT | TTC | CTT | GCT | TTT | 233 |
| | | | Met | Phe | Cys | Leu | Leu | Thr | Phe | Leu | Ala | Phe | |
| | | | -15 | | | | | | -10 | | | | |
| ACA | ACT | CTT | CTT | TTC | GCA | CCC | CCA | TGG | | | | | 260 |
| Thr | Thr | Leu | Leu | Phe | Ala | Pro | Pro | Trp | | | | | |
| -5 | | | | | 1 | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 49:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 365 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 126..212
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8.4
seq LKCLLAVLSSLFA/AI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:

| | | | | | | | | | | | | | | | | |
|--------------|------------|------------|------------|------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ACAAATGTGT | TATGATTTTC | CAGGCCCTTC | TTCATCTGCT | CTCCCTTCCT | TTTGAGCATT | 60 | | | | | | | | | | |
| ATCCCCATTTTC | ATGCCCCCAC | ACAGATTCTA | GCCATACCCC | ATGACTTACA | ATTTCCCCCAC | 120 | | | | | | | | | | |
| AAAGA | ATG | CAC | TGT | GGC | TCC | ACT | CCA | GGA | CTT | TGC | CCA | TGC | TGG | GTC | CCC | 170 |
| | Met | His | Cys | Gly | Ser | Thr | Pro | Gly | Leu | Cys | Pro | Cys | Trp | Val | Pro | |
| | | | | | -25 | | | | | -20 | | | | | -15 | |
| TTC | CTG | AAA | TGC | CTT | CTA | GCT | GTT | CTC | TCT | TCC | CTG | TTT | GCT | GCC | ATT | 218 |
| Phe | Leu | Lys | Cys | Leu | Leu | Ala | Val | Leu | Ser | Ser | Leu | Phe | Ala | Ala | Ile | |
| | | | | -10 | | | | | -5 | | | | | 1 | | |
| TCC | GTC | GAC | AGA | CTA | TAC | TTG | TCT | TTC | TGT | TCT | AAT | TGC | TCT | GAA | ATA | 266 |
| Ser | Val | Asp | Arg | Leu | Tyr | Leu | Ser | Phe | Cys | Ser | Asn | Cys | Ser | Glu | Ile | |
| | | 5 | | | | | 10 | | | | | 15 | | | | |
| TAC | CTC | TGG | CCC | CCC | AGC | TTT | CCT | GCT | CCC | CCA | TCC | CCT | GTA | GTC | CTT | 314 |
| Tyr | Leu | Trp | Pro | Pro | Ser | Phe | Pro | Ala | Pro | Pro | Ser | Pro | Val | Val | Leu | |
| | 20 | | | | | 25 | | | | | 30 | | | | | |

(D) OTHER INFORMATION: score 8.3
seq AAMLIGLLAWLQT/VP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

```

AAATTACAAG AAAGCTGGAC TTGCCGCTGT GGTCTCAGGA GAA ATG AGT GTT CTT      55
                                   Met Ser Val Leu
                                   -35

GAT GAC AGG CAA AGG GAC ATC TTA GTT GTC CAG AAG CGG CAC TCT TCC      103
Asp Asp Arg Gln Arg Asp Ile Leu Val Val Gln Lys Arg His Ser Ser
-30                               -25                               -20

CTG GAA GCC GCC ATG TTA ATA GGA TTA CTA GCC TGG CTC CAG ACA GTG      151
Leu Glu Ala Ala Met Leu Ile Gly Leu Leu Ala Trp Leu Gln Thr Val
-15                               -10                               -5                               1

CCT GCT CAT GGC TGC CAG TTC TTA CCG ATC CGG                        184
Pro Ala His Gly Cys Gln Phe Leu Pro Ile Arg
                    5                               10

```

(2) INFORMATION FOR SEQ ID NO: 52:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 251 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 138..197
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.3
seq LLIICHYLP LSLC/IP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

```

AATTTTTTTT CACTTTCCTA AAAGCCTTCC CTTTGCCCAT GATGCCAATG ACTAGCTCTG      60

TCCTGAAGCA ATAGCTAGTA CTTTCCCTCC TTCCTGCCAC CTAGCATCCA GCCGAACCTT      120

GAATCAATAC CAGTAAA ATG GGT GTG AAC GGA AGG AGG CTG CTC ATT ATT      170
               Met Gly Val Asn Gly Arg Arg Leu Leu Ile Ile
               -20                               -15                               -10

TGC CAT TAT TTA CCT CTG AGT CTG TGC ATT CCC ATT CCT TCC CAT ATT      218
Cys His Tyr Leu Pro Leu Ser Leu Cys Ile Pro Ile Pro Ser His Ile
               -5                               1                               5

AAT TCT CTC CCG CGC AAC ACC CCC CCT GTC AGG                        251

```

Asn Ser Leu Pro Arg Asn Thr Pro Pro Val Arg
 10 15

(2) INFORMATION FOR SEQ ID NO: 53:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 154 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 26..118
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.2
seq LECLLLYLAESSG/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:

| | |
|---|-----|
| ACAGAACTAA CCTAGAAAGA ATGAT ATG AAA CTT CGT GAG TGC CCG GCC CTC | 52 |
| Met Lys Leu Arg Glu Cys Pro Ala Leu | |
| -30 -25 | |
| CGA TGG TCC CAG CTG TCC CAG CAC AAG CTG GAG TGT CTA TTG CTT TAC | 100 |
| Arg Trp Ser Gln Leu Ser Gln His Lys Leu Glu Cys Leu Leu Leu Tyr | |
| -20 -15 -10 | |
| CTG GCA GAG AGC TCC GGG CTC AGA ACA GGA AAT GTG GGA GTT CTC CAC | 148 |
| Leu Ala Glu Ser Ser Gly Leu Arg Thr Gly Asn Val Gly Val Leu His | |
| -5 1 5 10 | |
| CCA AGG | 154 |
| Pro Arg | |

(2) INFORMATION FOR SEQ ID NO: 54:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 78..404
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 8.2
 seq LLRLPQLPPXCSA/GE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:

```

ACCCTTTTCGT CCGCTCTCAT TGGCTCTGCT GCAGCCCTGA CCAACGCTCC AATAGGCCGG      60
GATCCAGCCA TACTTCA ATG GAT CCC AGG GGT ATC TTG AAG GCA TTT CCC      110
      Met Asp Pro Arg Gly Ile Leu Lys Ala Phe Pro
                        -105                      -100

AAG CGG CAG AAA ATT CAT GCT GAT GCA TCA TCA AAA GTA CTT GCA AAG      158
Lys Arg Gln Lys Ile His Ala Asp Ala Ser Ser Lys Val Leu Ala Lys
      -95                      -90                      -85

ATT CCT AGG AGG GAA GAG GGA GAA GAA GCA GAA GAG TGG CTG AGC TCC      206
Ile Pro Arg Arg Glu Glu Gly Glu Glu Ala Glu Glu Trp Leu Ser Ser
      -80                      -75                      -70

CTT CGG GCC CAT GTT GTG CGC ACT GGC ATT GGA CGA GCC CGG GCA GAA      254
Leu Arg Ala His Val Val Arg Thr Gly Ile Gly Arg Ala Arg Ala Glu
      -65                      -60                      -55

CTC TTT GAG AAG CAG ATT GTT CAG CAT GGC GGC CAG CTA TGC CCT GCC      302
Leu Phe Glu Lys Gln Ile Val Gln His Gly Gly Gln Leu Cys Pro Ala
      -50                      -45                      -40                      -35

CAG GGC CCA GGT GTC ACT CAC ATT GTG GTG GAT GAA GGC ATG GAC TAT      350
Gln Gly Pro Gly Val Thr His Ile Val Val Asp Glu Gly Met Asp Tyr
      -30                      -25                      -20

GAG CGA GCC CTC CGC CTT CTC AGA CTA CCC CAG CTG CCC CCG GKT TGC      398
Glu Arg Ala Leu Arg Leu Leu Arg Leu Pro Gln Leu Pro Pro Xaa Cys
      -15                      -10                      -5

TCA GCT GGT GAA GTC AGC CTG GCT GAG CTT GTG CCT TCA GGA GAG GAG      446
Ser Ala Gly Glu Val Ser Leu Ala Glu Leu Val Pro Ser Gly Glu Glu
      1                      5                      10

GCT GGT GGA TGT AGC TGG ATT CAG CAT CTT CAT CCC AGT      485
Ala Gly Gly Cys Ser Trp Ile Gln His Leu His Pro Ser
      15                      20                      25
  
```

(2) INFORMATION FOR SEQ ID NO: 55:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 276 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 199..261
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 8
 seq LFLVAVLVKVAEA/RK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:

```
AGCCTCTCCT GCACCCCTCAG CCGGCGCGCT TCTCTTATGG GCGTCTGCTG CAGTCTGGCT    60
GCGGTCTGAAC TGAAAGCGGC GGC GGGAGAC CAAACTTAGA CCCCCTGTGT GACTAGAGAA   120
CTCAGAGAAG GCAGAGGGAG AGGGAGAGAG AGASABWBAA GGGACCCGAG GAGGAGGCTT   180
CCATCACGTC ATTGCAGG ATG TTC TGG AAG CTT TCC CTG TCC TTG TTC CTG       231
      Met Phe Trp Lys Leu Ser Leu Ser Leu Phe Leu
      -20                               -15

GTG GCG GTG CTG GTG AAG GTG GCG GAA GCC CGG AAG AAC CGG TCG           276
Val Ala Val Leu Val Lys Val Ala Glu Ala Arg Lys Asn Arg Ser
-10                               -5                               1                               5
```

(2) INFORMATION FOR SEQ ID NO: 56:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 197 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 120..173
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.9
 seq LFSLLVLQSMATG/AT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:

```
AAGTTTCCCG GGAGAGACGA AAGCAGGAAC GAGAGCGGAG GNAGCACAGT CCGCCGAGCA    60
CAAGCTCCAG CATCCCGTCA GGGGTTGCAG GTGTGTGGGA GGCTTGAAAC TGTTACAAT   119
ATG GCT TTC CTT GGA CTC TTC TCT TTG CTG GTT CTG CAA AGT ATG GCT       167
Met Ala Phe Leu Gly Leu Phe Ser Leu Leu Val Leu Gln Ser Met Ala
      -15                               -10                               -5

ACA GGG GCC ACT TTC CCT GAG GAA GCC CCG                               197
```

Thr Gly Ala Thr Phe Pro Glu Glu Ala Pro
 1 5

(2) INFORMATION FOR SEQ ID NO: 57:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 299 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 90..143
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.9
seq LFSLLVLQSMATG/AT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:

```

AGAGAGCGGA SSTAGCACAG TCCGCCGAGC ACAAGCTCCA GCATCCCGTC AGGGTTGCAG      60
GTGTGTGGGA GGCTTGAAAC TGTTACAAT ATG GCT TTC CTT GGA CTC TTC TCT      113
                               Met Ala Phe Leu Gly Leu Phe Ser
                               -15

TTG CTG GTT CTG CAA AGT ATG GCT ACA GGG GCC ACT TTC CCT GAG GAA      161
Leu Leu Val Leu Gln Ser Met Ala Thr Gly Ala Thr Phe Pro Glu Glu
-10 -5 1 5

GCC ATT GCT GAC TTG TCA GTG AAT ATG TAT AAT CGT CTT AGA GCA GTT      209
Ala Ile Ala Asp Leu Ser Val Asn Met Tyr Asn Arg Leu Arg Ala Val
10 15 20

GGA AGC TGG AGA AGG GAA GGA GCC AGC AGA CAA ATT GCT TCG TGT CTG      257
Gly Ser Trp Arg Arg Glu Gly Ala Ser Arg Gln Ile Ala Ser Cys Leu
25 30 35

CCT GCC TTT CTC CTC CAT TTA CCC CTT ACA CAC ACA CAC GGG      299
Pro Ala Phe Leu Leu His Leu Pro Leu Thr His Thr His Gly
40 45 50

```

(2) INFORMATION FOR SEQ ID NO: 58:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 370 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 62..226

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 7.8
seq ALLVALLFTLIHR/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

```

AAGTGAGAAA GGAGCTTACC AAAGGCAGTG TACGAAGAAG GTTCCTGGGA GACTGTCAGA      60
A ATG AGT TTT TCA CTG AAC TTC ACC CTG CCG GCG AAC ACA ACG TCC TCT      109
  Met Ser Phe Ser Leu Asn Phe Thr Leu Pro Ala Asn Thr Thr Ser Ser
  -55                      -50                      -45                      -40

CCT GTC ACA GGT GGG AAA GAA ACG GAC TGT GGG CCC TCT CTT GGA TTA      157
  Pro Val Thr Gly Gly Lys Glu Thr Asp Cys Gly Pro Ser Leu Gly Leu
                -35                      -30                      -25

GCG GCG GGC ATA CCA TTG CTG GTG GCC ACA GCC CTG CTG GTG GCT TTA      205
  Ala Ala Gly Ile Pro Leu Leu Val Ala Thr Ala Leu Leu Val Ala Leu
                -20                      -15                      -10

CTA TTT ACT TTG ATT CAC CGA AGA AGA AGC AGC ATT GAG GCC ATG GAG      253
  Leu Phe Thr Leu Ile His Arg Arg Arg Ser Ser Ile Glu Ala Met Glu
                -5                      1                      5

GAA AGT GAC AGA CCA TGT GAA ATT TCA GAA ATT GAT GAC AAT CCC AAG      301
  Glu Ser Asp Arg Pro Cys Glu Ile Ser Glu Ile Asp Asp Asn Pro Lys
  10                      15                      20                      25

ATA TCT GAG AAT CCT AGG AGA TCA CCC ACA CAT GAG AAG AAT ACG ATG      349
  Ile Ser Glu Asn Pro Arg Arg Ser Pro Thr His Glu Lys Asn Thr Met
                30                      35                      40

GGA GCA CAA GAG GCC CGC TGG      370
  Gly Ala Gln Glu Ala Arg Trp
                45

```

(2) INFORMATION FOR SEQ ID NO: 59:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 336 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 91..330
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.7
seq LVLFLSLALLVTP/TS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

```

TATTCCTTGG AGTTCACGA CTGAATTAAG ACTGTTGTGG GRDCCATAAT TTTCAAATAC    60
TTGCCCTATA TTCGTGTTGA GGGTTCACAC ATG AGC ACA TGG TAT TTG GCA CTT    114
                               Met Ser Thr Trp Tyr Leu Ala Leu
                               -80                               -75

AAT AAG TCC TAT AAG AAT AAA GAC AGC GTT AGG ATT TAT CTC AGC TTG    162
Asn Lys Ser Tyr Lys Asn Lys Asp Ser Val Arg Ile Tyr Leu Ser Leu
      -70                               -65                               -60

TGC ACA GTG AGC ATT AAA TTT ACA TAC TTT CAT GAT ATA CAG ACT AAT    210
Cys Thr Val Ser Ile Lys Phe Thr Tyr Phe His Asp Ile Gln Thr Asn
      -55                               -50                               -45

TGT CTT ACA ACA TGG AAA CAT TCG AGA TGC AGA TTT TAT TGG GCA TTT    258
Cys Leu Thr Thr Trp Lys His Ser Arg Cys Arg Phe Tyr Trp Ala Phe
      -40                               -35                               -30                               -25

GGT GGT TCC ATT TTA CAG CAC TCA GTG GAT CCC CTT GTT TTG TTC CTA    306
Gly Gly Ser Ile Leu Gln His Ser Val Asp Pro Leu Val Leu Phe Leu
                               -20                               -15                               -10

AGC CTG GCC CTG TTA GTG ACA CCC ACT TCG                                336
Ser Leu Ala Leu Leu Val Thr Pro Thr Ser
      -5                               1

```

(2) INFORMATION FOR SEQ ID NO: 60:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 394 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 266..322
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.7
seq LQLCCIFTLVLQ/HY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 60:


```

ATACTATAAG GCTAGAATTG ACTTGGAGTC AAGGCGAGTT CCATAGGTTT AATGCGTGGC    60
ACCTATCTCA ACAACTGCAA AATCACTGTA ACTTGTA AAAA AATCCCAGGG CCACTCATGG   120
ACAGCCACAT CTTTAAACCC ACACAAAAAT ACAGACACTT TGATTACATG AAAGTTAGAA   180
GCTCTAAACT AGAGCAAGGT CAGTTGTGGT AAGAAGGTAT TAGATTCAAG CATCCACAAA   240
AGTTTATAGT CTGTCAGTCA TAAGG ATG GCT ATT GGG ATT TCT TTA CAG TTA   292
                               Met Ala Ile Gly Ile Ser Leu Gln Leu
                               -15

CTC TGT TGT ATT TTC ACT TTG GTT TTA CAG CAC TAT CTC TTA GGA AGT   340
Leu Cys Cys Ile Phe Thr Leu Val Leu Gln His Tyr Leu Leu Gly Ser
-10                               -5                               1                               5

CAT CCA TAT ATT ACC TGC ATA CAC AGT CAG CTT CTT CTC GAT ATA CAG   388
His Pro Tyr Ile Thr Cys Ile His Ser Gln Leu Leu Leu Asp Ile Gln
                               10                               15                               20

CAG CAG                                                                394
Gln Gln

```

(2) INFORMATION FOR SEQ ID NO: 61:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 429 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 208..264
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.6
seq LLNLLLLSLFAGL/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 61:

```

GAGAATGCCT GCNGAATGAT CGCCCCCAG GCGGCTGCC GCCGCTGCCG CTGCTGCTGT    60
TATTGCTACT GCTGCTGCCG CCGCCTCTGC TTCCACTCGG CTCTGACTGG CAGGCARAAA   120
RTGCAACTTG AMSGARGGRH ARGCTCTGG CAGTGAGTGG AGAGCCTACA TAAAAGAGAG   180
TAAAGAGGGG CAAAACCCA GATCAGA ATG CAG GCG ACG TCC AAC CTT CTC AAC   234
                               Met Gln Ala Thr Ser Asn Leu Leu Asn
                               -15

```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CTC | CTG | CTG | CTG | TCT | TTG | TTT | GCC | GGA | TTA | GAT | CCT | TCC | AAG | AAC | AAA | 282 |
| Leu | Leu | Leu | Leu | Ser | Leu | Phe | Ala | Gly | Leu | Asp | Pro | Ser | Lys | Asn | Lys | |
| -10 | | | | | -5 | | | | | 1 | | | | | 5 | |
| | | | | | | | | | | | | | | | | |
| AAG | AGA | GGA | AGT | TCT | TTT | TCA | TTT | AAG | TTT | CCT | TTA | CTA | GAT | GAT | ACC | 330 |
| Lys | Arg | Gly | Ser | Ser | Phe | Ser | Phe | Lys | Phe | Pro | Leu | Leu | Asp | Asp | Thr | |
| | | | 10 | | | | | 15 | | | | | 20 | | | |
| | | | | | | | | | | | | | | | | |
| CCA | TTC | CTA | NGA | TCC | AGA | ATT | GAA | AAT | AGT | GCT | ACA | CAT | CAT | CTA | CAC | 378 |
| Pro | Phe | Leu | Xaa | Ser | Arg | Ile | Glu | Asn | Ser | Ala | Thr | His | His | Leu | His | |
| | | 25 | | | | | 30 | | | | | 35 | | | | |
| | | | | | | | | | | | | | | | | |
| TAT | GGA | CTA | AAC | ATG | ATT | CTG | TGG | GTT | AAT | TGG | AAA | CCT | AAG | CTC | ACT | 426 |
| Tyr | Gly | Leu | Asn | Met | Ile | Leu | Trp | Val | Asn | Trp | Lys | Pro | Lys | Leu | Thr | |
| | 40 | | | | | 45 | | | | | 50 | | | | | |
| | | | | | | | | | | | | | | | | |
| TTG | | | | | | | | | | | | | | | | 429 |
| Leu | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 62:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 189 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 88..180
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.6
seq VTLLCGWPGSHWC/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 62:

| | | | | | | |
|-------------|-------------|-------------|-----------------|-------------|-------------|-----|
| AACAGGCGTA | ASKACATGGC | CCAGCTCGAT | CCCTCCCTTT | TGTTCAACAA | ACTAAATTCTG | 60 |
| | | | | | | |
| AGCAGGAGGC | TCTAGGATTC | CACAGGC | ATG ATG AAA | TGG AAG CCG | GAG GAT CTG | 114 |
| | | | Met Met Lys Trp | Lys Pro Glu | Asp Leu | |
| | | | -30 | | -25 | |
| | | | | | | |
| GGA TCG GTT | CCT TGT GAG | GCT TTC TCT | GTT ACT CTG | CTG TGC GGC | TGG | 162 |
| Gly Ser Val | Pro Cys Glu | Ala Phe Ser | Val Thr Leu | Leu Cys Gly | Trp | |
| | -20 | | -15 | | -10 | |
| | | | | | | |
| CCA GGG TCG | CAT TGG TGT | GCC CCA CCA | | | | 189 |
| Pro Gly Ser | His Trp Cys | Ala Pro Pro | | | | |
| | -5 | | 1 | | | |

(2) INFORMATION FOR SEQ ID NO: 63:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 243 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 10..66
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.6
seq LLNLLLLSLFAGL/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 63:

```

AAGATCAGA ATG CAG GCG ACG TCC AAC CTT CTC AAC CTC CTG CTG CTG TCT   51
  Met Gln Ala Thr Ser Asn Leu Leu Asn Leu Leu Leu Ser
                -15                      -10

TTG TTT GCC GGA TTA GAT CCT TCC AAG ACT CAG ATT AGT CCT AAA GAA   99
Leu Phe Ala Gly Leu Asp Pro Ser Lys Thr Gln Ile Ser Pro Lys Glu
  -5                1                5                10

GGG TGG CAG GTG TAC AGC TCA GCT CAG GAT CCT GAT GGG CGG TGC ATT   147
Gly Trp Gln Val Tyr Ser Ser Ala Gln Asp Pro Asp Gly Arg Cys Ile
                15                20                25

TGC ACA GTT GTW GCT CCA GAA CAA AAC CTG TGT TCC CGG GAT GCC AAA   195
Cys Thr Val Val Ala Pro Glu Gln Asn Leu Cys Ser Arg Asp Ala Lys
                30                35                40

AGC AGG CAA CTT CGC CAA CTA CTG GAA AAG GTT CAG AAC ATG TCC CGG   243
Ser Arg Gln Leu Arg Gln Leu Leu Glu Lys Val Gln Asn Met Ser Arg
                45                50                55

```

(2) INFORMATION FOR SEQ ID NO: 64:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 158..301
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.5
seq FVILLLFIFTVVS/LV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 64:

```

ACAAACAGAC GMTACCATCG CTCAGCAGC ATCCTCTCAG ACAAGAGCCA CTATTTCTGA      60
TTCAGATCAC CTGTCATCGA AGTTTAAAGA AGGGGAAACA GGAGACAGAA ATACACTGAA      120
CCAAAAAGAT TCAAAAGAGC AAGTGGAATC TCTAAGA ATG GCT TCC AGC CAC TGG      175
                               Met Ala Ser Ser His Trp
                               -45

AAT GAA ACC ACT ACC TCT GTT TAT CAG TAC CTT GGT TTT CAA GTT CAA      223
Asn Glu Thr Thr Thr Ser Val Tyr Gln Tyr Leu Gly Phe Gln Val Gln
-40                               -35                               -30

AAA ATT TAC CCT TTC CAT GAC AAC TGG AAC ACT GCC TGC TTT GTC ATC      271
Lys Ile Tyr Pro Phe His Asp Asn Trp Asn Thr Ala Cys Phe Val Ile
-25                               -20                               -15

CTG CTT TTA TTT ATA TTT ACA GTG GTA TCT TTA GTG GTG CTG GCT TTC      319
Leu Leu Leu Phe Ile Phe Thr Val Val Ser Leu Val Val Leu Ala Phe
-10                               -5                               1                               5

CTT TAT GAA GTG CTT GAC TGC TGC TGC TGT GTA AAA AAC AAA ACC GTG      367
Leu Tyr Glu Val Leu Asp Cys Cys Cys Cys Val Lys Asn Lys Thr Val
10                               15                               20

AAA GAC TTG AAA AGT GAA CCC AAC CCT CGG      397
Lys Asp Leu Lys Ser Glu Pro Asn Pro Arg
25                               30

```

(2) INFORMATION FOR SEQ ID NO: 65:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 182 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 78..176
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4
seq ITCCVLLLLNCSG/VW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 65:

```

ATCGACTGTG AGCTGCGGCA GAGAGCAGAG GCGGCGGCGC GGGACCTGCA GTCGCCAGGG      60
ATTCCCTCCA GGTGACG  ATG  CTC  TGG  TTC  TCC  GGC  GTC  GGG  GCT  CTG  GCT      110
          Met  Leu  Trp  Phe  Ser  Gly  Val  Gly  Ala  Leu  Ala
                    -30                      -25

GAG CGT  TAC  TGC  CGC  CGC  TCG  CCT  GGG  ATT  ACG  TGC  TGC  GTC  TTG  CTG      158
Glu  Arg  Tyr  Cys  Arg  Arg  Ser  Pro  Gly  Ile  Thr  Cys  Cys  Val  Leu  Leu
          -20                      -15                      -10

CTA CTC  AAT  TGC  TCA  GGG  GTC  TGG      182
Leu  Leu  Asn  Cys  Ser  Gly  Val  Trp
          -5                      1

```

(2) INFORMATION FOR SEQ ID NO: 66:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 256 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 164..238
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.3
seq LIFFLNVTQLVRG/RG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 66:

```

AGTAAATAAA AAGTTTGCTT TATTAAATTA TGTTTAGATA GTGSTITATAG TGCTTTACCC      60
CTTCAAAATA GTAACCTCTA TCAATCATTT AGGATGTGTG TCAGACTATT CTGTGTCCTT      120
TAAGTGTGTK AACTAGTTTT AACCTCTGCG AAATATCTGA GGT  ATG  CTC  TTT  TTA      175
          Met  Leu  Phe  Leu
                    -25

CAG ATG  GGA  AAA  CAA  TCT  TGG  ACT  TTA  ATA  TTT  TTT  CTT  AAT  GTT  ACA      223
Gln  Met  Gly  Lys  Gln  Ser  Trp  Thr  Leu  Ile  Phe  Phe  Leu  Asn  Val  Thr
          -20                      -15                      -10

CAA  TTA  GTA  AGA  GGC  AGG  GGG  CCA  GGC  GGA  CGG      256
Gln  Leu  Val  Arg  Gly  Arg  Gly  Pro  Gly  Gly  Arg
          -5                      1                      5

```

(2) INFORMATION FOR SEQ ID NO: 67:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 126 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 19..99
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.2
seq LLLGLCSPPXXSL/AS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 67:

```

AATTGATTAG GAGATTAT ATG GAG CTG CGG GAS NTG CCG CCT GGG GGA AGA      51
      Met Glu Leu Arg Xaa Xaa Pro Pro Gly Gly Arg
                -25                      -20

GAG GTG CAG CTT CTG CTA GGT TTG TGC TCT CCT CCC AGS RTC TCC TTG      99
Glu Val Gln Leu Leu Leu Gly Leu Cys Ser Pro Pro Xaa Xaa Ser Leu
      -15                -10                      -5

GCT TCC TTC CCC AAA GCA GCT CAG ATG      126
Ala Ser Phe Pro Lys Ala Ala Gln Met
  1                5

```

(2) INFORMATION FOR SEQ ID NO: 68:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 46..87
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq LWSLLSSSGSHFG/IP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 68:

```

AGCAGGCCTT TGGGAGAGAA ACCTAATGCC TAAGCCTCAT CCTTT ATG CTC TGG TCT   57
                               Met Leu Trp Ser

CTT CTT TCC TCT TCA GGC TCA CAT TTT GGT ATC CCT CAC CAC ACA TTT   105
Leu Leu Ser Ser Ser Gly Ser His Phe Gly Ile Pro His His Thr Phe
-10                -5                1                5

CCC CAA GAA GGG   117
Pro Gln Glu Gly
                10

```

(2) INFORMATION FOR SEQ ID NO: 69:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 110..265
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq SVWLCLLCYFAFP/FQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 69:

```

ATGCACCATG ATATTTTAT ACACGTTGTG TTAACACTG TAAACACATT GTCTTCTTTA   60

TATTTCTTTG CAGGAAGTTC AGAAAAAAGT GTCACGTTTT AATCTGCAG ATG GAC ATA   118
                               Met Asp Ile
                               -50

AGT GGA TTA ATT CCT GGT CTA GTG TCT ACA TTC ATA CTT TTG TCT AKH   166
Ser Gly Leu Ile Pro Gly Leu Val Ser Thr Phe Ile Leu Leu Ser Xaa
                -45                -40                -35

AGT GAT CAC TAC GGA CGA AAA TTC CCT ATG ATT TTG TCT TCC GTT GGT   214
Ser Asp His Tyr Gly Arg Lys Phe Pro Met Ile Leu Ser Ser Val Gly
                -30                -25                -20

GCT CTT GCA ACC AGC GTT TGG CTC TGT TTG CTT TGC TAT TTT GCC TTT   262
Ala Leu Ala Thr Ser Val Trp Leu Cys Leu Leu Cys Tyr Phe Ala Phe
                -15                -10                -5

CCA TTC CAG CTT TTG ATT GCA TCT ACC TTC ATT GGT GCA TTT NGT GGC   310
Pro Phe Gln Leu Leu Ile Ala Ser Thr Phe Ile Gly Ala Phe Xaa Gly
                1                5                10                15

AAT TAT ACC ACA TTT TGG GGA GCT TGC TTT GCC TAT ATA GTT GAT CAG   358

```

```

Asn Tyr Thr Thr Phe Trp Gly Ala Cys Phe Ala Tyr Ile Val Asp Gln
                20                      25                      30

TGT AAA GAA CRS DKA CAA AAA ACA ATT CGA ATA GCT ATC ATT GAC TTT      406
Cys Lys Glu Xaa Xaa Gln Lys Thr Ile Arg Ile Ala Ile Ile Asp Phe
                35                      40                      45

CTA CTT GGA CTT GTT ACT GGA CTA ACA GTA CTG TCA TCT      445
Leu Leu Gly Leu Val Thr Gly Leu Thr Val Leu Ser Ser
                50                      55                      60

```

(2) INFORMATION FOR SEQ ID NO: 70:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 244 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 137..226
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq LFVILLITSLIFC/SL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 70:

```

ACTTTTGTGAA TTTGTTGCTG GTACAGTTGC ATGTATTCTC TTAAAATTAT TTTGAGGCCT      60
CATATCTGGT TATTCTCCT TTCTATTCC TTATCTTGGC TGTTTTTACC TTTTTTTCAT      120
AACTAAGTTT TTGAGG ATG TWA GTG TTC TTT TCA AAG AAC CGG TTC GAA ATG      172
          Met Xaa Val Phe Phe Ser Lys Asn Arg Phe Glu Met
          -30                      -25                      -20

TAC TTT TCT TTG CTA CTT TTT GTT ATT TTA TTG ATC ACA TCT TTA ATC      220
Tyr Phe Ser Leu Leu Leu Phe Val Ile Leu Leu Ile Thr Ser Leu Ile
          -15                      -10                      -5

TTT TGT TCT CTA TAC GTG GCG CGT      244
Phe Cys Ser Leu Tyr Val Ala Arg
          1                      5

```

(2) INFORMATION FOR SEQ ID NO: 71:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 390 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 289..357

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 6.9
seq SLSLLASHHSVSC/SN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 71:

| | |
|--|-------------|
| AAGTACAAAG CCTACTCCAA AGACTGCAGC TTGAAGATAA AAGAGAGCAC TCGTCCTTT | 60 |
| TGAAAATAAA GGCAGACACA AAGAAGAAAG GAGCTACCTT ACCCCAGCAT ATACCTGCGG | 120 |
| GATGTTCTCT CCAGTTCATT TTTACCTGGT GTCTTGAAAT CCGAGCAATT CCTAAAAAGG | 180 |
| CATTTTTGCG AGCCCTTG TG GACTATACCA GTGACAGTGC TGAAAAGCGC AGGCTACAGG | 240 |
| AGCTGTGCAG TAAACAAGGG GCAGCCGATT ATAGCCGCTT TGTACGAG ATG CCT GTG | 297 |
| | Met Pro Val |
| CCT GCT TGT TGG ATC TCC TCC TCG CTT TCC CTT CTT GCC AGC CAC CAC | 345 |
| Pro Ala Cys Trp Ile Ser Ser Ser Leu Ser Leu Leu Ala Ser His His | |
| -20 -15 -10 -5 | |
| TCA GTC TCC TGC TCG AAC ATC TTC CTA AAC TTC AAC CCA GAC CGG | 390 |
| Ser Val Ser Cys Ser Asn Ile Phe Leu Asn Phe Asn Pro Asp Arg | |
| 1 5 10 | |

(2) INFORMATION FOR SEQ ID NO: 72:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 374 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 198..260

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 6.9
seq LLACGSLLPGLWQ/HL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 72:

```

ATATATTTCT GAGGCAGTAC CCATCTCACT TGTAACCTTA AAAGACACCG CAGAGATTG      60
AGGGACTCAG AAGTCAAATA GAGTAGGTTA AAAACCTCTT ATTTTTCAAA TTAATTGTTT    120
TAAGAAACAA GCATACCTGT GTAAGTGAAA TATCTTAATT TGTGTTGAAT CAAGTTAGGA    180
GACAGAGATT CTCATGA ATG TGT CCT GTG TTC TCA AAG CAG CTG CTA GCC      230
              Met Cys Pro Val Phe Ser Lys Gln Leu Leu Ala
              -20                      -15

TGT GGG TCT CTC CTA CCT GGG TTA TGG CAG CAC CTC ACA GCC AAT CAC      278
Cys Gly Ser Leu Leu Pro Gly Leu Trp Gln His Leu Thr Ala Asn His
-10                      -5                      1                      5

TGG CCT CCA TTC TCC SCT TTC CTC TGT ACA GTT TGC TCT GGT TCC TCA      326
Trp Pro Pro Phe Ser Xaa Phe Leu Cys Thr Val Cys Ser Gly Ser Ser
              10                      15                      20

GAG CAG ATT TCC GAG TAT ACT GCT TCA GCC ACG CCC CCA CTG TGC CTG      374
Glu Gln Ile Ser Glu Tyr Thr Ala Ser Ala Thr Pro Pro Leu Cys Leu
              25                      30                      35

```

(2) INFORMATION FOR SEQ ID NO: 73:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 416 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 33..260
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.9
seq LLPLSAWPPWAWH/HH

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 73:

```

ACGCTCAGCA GGTCCACTCC CGTGTTCGGG TC ATG GCT TTA ACA ATT CAT GGG      53
              Met Ala Leu Thr Ile His Gly
              -75                      -70

GAA AGA ATG GGC CCC GAT TGG GAG AGC CCC TGG ATC ACG TCT TCC CAA      101
Glu Arg Met Arg Pro Asp Trp Glu Ser Pro Trp Ile Thr Ser Ser Gln
              -65                      -60                      -55

GCT CAG TCC CTC TCT CTT GGA GGG AGT CCG TCC TCG AGG GGC CCT CTG      149
Ala Gln Ser Leu Ser Leu Gly Gly Ser Pro Ser Ser Arg Gly Pro Leu
              -50                      -45                      -40

```

```

GTG CCC AGG GGA GAG TAT CTT GCG TCC TGT CCT GAG GGC GTC CGC TCA 197
Val Pro Arg Gly Glu Tyr Leu Ala Ser Cys Pro Glu Gly Val Arg Ser
      -35                -30                -25

CAC AGC CAC CTG CTC CCC CGC TCC CTC CTT CCC TTG TCA GCA TGG CCA 245
His Ser His Leu Leu Pro Arg Ser Leu Leu Pro Leu Ser Ala Trp Pro
      -20                -15                -10

CCG TGG GCC TGG CAT CAC CAT GGG CCT GGC ACA CAG TCC CTC GTG GGC 293
Pro Trp Ala Trp His His His Gly Pro Gly Thr Gln Ser Leu Val Gly
      -5                1                5                10

TGC CTT TGT GCC ATG AGC CCA CTG CTG CCG ACT CAC CTG TCC CTC CCA 341
Cys Leu Cys Ala Met Ser Pro Leu Leu Pro Thr His Leu Ser Leu Pro
            15                20                25

GTA CTG GAA CCT TCT GGA ACA CCA GCA CTA AAA GAT AGG AGG CCC TGT 389
Val Leu Glu Pro Ser Gly Thr Pro Ala Leu Lys Asp Arg Arg Pro Cys
            30                35                40

GAG GTT GGC ATC CCC ATC CCC CCC AGG 416
Glu Val Gly Ile Pro Ile Pro Pro Arg
      45                50

```

(2) INFORMATION FOR SEQ ID NO: 74:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 295 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (E) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 11..286
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.8
seq ILIASSLPTLSHP/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 74:

```

AAGAGTCACA ATG GCA GCC AGA TTC AGG TGC GGC CAT TTG TGT GTC CCC 49
Met Ala Ala Arg Phe Arg Cys Gly His Leu Cys Val Pro
            -90                -85                -80

GAG GTT CCT CGC GGG CCG GCA TCC CAC GCC GAG GGT GGT GGT GGC AGG 97
Glu Val Pro Arg Gly Pro Ala Ser His Ala Glu Gly Gly Gly Gly Arg
            -75                -70                -65

CTT TCC AGA AAG GCA GCA CAC CAG GCT CAG CTC TGC TGG CGA GCA GGA 145
Leu Ser Arg Lys Ala Ala His Gln Ala Gln Leu Cys Trp Arg Ala Gly

```

| | | | |
|---|-----|-----|-----|
| -60 | -55 | -50 | |
| GGC GAC GGC AGA GGA AAC TTC AAC CCG ATG AAC TTC CTG GTT GCG GGG | | | 193 |
| Gly Asp Gly Arg Gly Asn Phe Asn Pro Met Asn Phe Leu Val Ala Gly | | | |
| -45 | -40 | -35 | |
| ACA TTT GCC TCC TCC TGC CAC TCA CCA CCT CTG CTC TGG TCC CTC CCT | | | 241 |
| Thr Phe Ala Ser Ser Cys His Ser Pro Pro Leu Leu Trp Ser Leu Pro | | | |
| -30 | -25 | -20 | |
| CCA AGA ATC CTC ATA GCG TCC TCT CTC CCC ACT CTC TCC CAT CCC GCG | | | 289 |
| Pro Arg Ile Leu Ile Ala Ser Ser Leu Pro Thr Leu Ser His Pro Ala | | | |
| -15 | -10 | -5 | 1 |
| CCT GGG | | | 295 |
| Pro Gly | | | |

(2) INFORMATION FOR SEQ ID NO: 75:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 101..187
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.8
seq VLSLICSCFYTQP/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 75:

| | |
|---|-----|
| ACTCTCCCCT CCCCTCCCCG GCACTGCAGC ACCAGCCGTC TGCAGCTCCG GCCGCCACTT | 60 |
| GCGCCTCTCC AGCCTCCGCA GCCCAACCGC CGCCAGCACC ATG GCC AGC ACC ATT | 115 |
| Met Ala Ser Thr Ile | -25 |
| TCC GCC TAC AAG GAG AAG ATG AAG GAG CTG TCG GTG CTG TCG CTC ATC | 163 |
| Ser Ala Tyr Lys Glu Lys Met Lys Glu Leu Ser Val Leu Ser Leu Ile | |
| -20 | -15 |
| -10 | |
| TGC TCC TGC TTC TAC ACA CAG CCG CAC CCC AAT ACC GTC TAC CAG TAC | 211 |
| Cys Ser Cys Phe Tyr Thr Gln Pro His Pro Asn Thr Val Tyr Gln Tyr | |
| -5 | 1 |
| 5 | |
| GGG GAC ATG GAG GTG AAG CAG CTG GAC AAG CGG GCC TCA GGC CAG AGC | 259 |
| Gly Asp Met Glu Val Lys Gln Leu Asp Lys Arg Ala Ser Gly Gln Ser | |
| 10 | 15 |
| 20 | |

| | |
|---|-----|
| TTC GAG GTC ATC CTC AAG TCC CCT TCT GAC CTG TCC CCA GAG AGC CCT | 307 |
| Phe Glu Val Ile Leu Lys Ser Pro Ser Asp Leu Ser Pro Glu Ser Pro | |
| 25 30 35 40 | |
| ATG CTC TCC TCC CCA CCC AAG AAG AAG GAC ACC TCC CTG GAG GAG CTG | 355 |
| Met Leu Ser Ser Pro Pro Lys Lys Lys Asp Thr Ser Leu Glu Glu Leu | |
| 45 50 55 | |
| CAA AAG | 361 |
| Gln Lys | |

(2) INFORMATION FOR SEQ ID NO: 76:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 2..343
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.7
seq LIPMAILLGQTQS/NS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 76:

| | |
|---|-----|
| A ATG TTA CAA GTC TAT GGA AAG CCA GTT TAT CAG GGC CAT CGA AGC ACT | 49 |
| Met Leu Gln Val Tyr Gly Lys Pro Val Tyr Gln Gly His Arg Ser Thr | |
| -110 -105 -100 | |
| CTT AAA AAA GGA CCA TAT CTC AGA TTT AAT TCT CCA TCT CCT AAG TCC | 97 |
| Leu Lys Lys Gly Pro Tyr Leu Arg Phe Asn Ser Pro Ser Pro Lys Ser | |
| -95 -90 -85 | |
| AGA CCA CAG AGA CCA AAA GTA ATA GAA CGA GTT AAA GGC ACT AAG GTA | 145 |
| Arg Pro Gln Arg Pro Lys Val Ile Glu Arg Val Lys Gly Thr Lys Val | |
| -80 -75 -70 | |
| AAG TCA ATA AGA ACA CAG ACT GAC TTC TAT GCA ACA AAA CCT AAG AAG | 193 |
| Lys Ser Ile Arg Thr Gln Thr Asp Phe Tyr Ala Thr Lys Pro Lys Lys | |
| -65 -60 -55 | |
| ATG GAT TCT AAA ATG AAA CAT TCT GTT CCT GTG TTA CCT CAT GGC GAT | 241 |
| Met Asp Ser Lys Met Lys His Ser Val Pro Val Leu Pro His Gly Asp | |
| -50 -45 -40 -35 | |
| CAG CAA TAT TTG TTC AGC CCA AGT AGA GAA ATG CCT ACT TTT TCA GGT | 289 |
| Gln Gln Tyr Leu Phe Ser Pro Ser Arg Glu Met Pro Thr Phe Ser Gly | |
| -30 -25 -20 | |

ACA TTG GAA GGT CAT CTG ATT CCT ATG GCA ATT CTT TTA GGA CAA ACC 337
Thr Leu Glu Gly His Leu Ile Pro Met Ala Ile Leu Leu Gly Gln Thr
-15 -10 -5

CAA AGT AAT AGT GAT ACC ATG CCG 361
Gln Ser Asn Ser Asp Thr Met Pro
1 5

(2) INFORMATION FOR SEQ ID NO: 77:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 8..361
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.7
seq LLFAKLEFGHLTSR/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 77:

AGCAGAC ATG TCT GTA CTT GAA ATC AGT GGA ATG ATA ATG AAC AGA GTG 49
Met Ser Val Leu Glu Ile Ser Gly Met Ile Met Asn Arg Val
-115 -110 -105

AAC AGC CAT ATA CCA GGA ATA GGA TAC CAG ATT TTT GGA AAT GCA GTC 97
Asn Ser His Ile Pro Gly Ile Gly Tyr Gln Ile Phe Gly Asn Ala Val
-100 -95 -90

TCT CTC ATA CTG GGT TTA ACT CCA TTT GTT TTC CGA CTT TCT CAA GCT 145
Ser Leu Ile Leu Gly Leu Thr Pro Phe Val Phe Arg Leu Ser Gln Ala
-85 -80 -75

ACA GAC TTG GAA CAA CTC ACA GCA CAT TCT GCT TCA GAA CTT TAT GTG 193
Thr Asp Leu Glu Gln Leu Thr Ala His Ser Ala Ser Glu Leu Tyr Val
-70 -65 -60

ATT GCA TTT GGT TCT AAT GAA GAT GTC ATA GTT CTT TCT ATG GTT ATA 241
Ile Ala Phe Gly Ser Asn Glu Asp Val Ile Val Leu Ser Met Val Ile
-55 -50 -45

ATA AGT TTT GTG GTT CGC GTG TCT CTT GTG TGG ATT TTC TTT TTT TTG 289
Ile Ser Phe Val Val Arg Val Ser Leu Val Trp Ile Phe Phe Phe Leu
-40 -35 -30 -25

CTC TGT GTA GCA GAA AGA ACT TAT AAA CAG CGA TTA CTT TTT GCA AAA 337
Leu Cys Val Ala Glu Arg Thr Tyr Lys Gln Arg Leu Leu Phe Ala Lys
-20 -15 -10

CTC TTT GGA CAT TTA ACA TCT GCA AGG AGG GCT CGA AAA TCT GAG GTT 385
Leu Phe Gly His Leu Thr Ser Ala Arg Arg Ala Arg Lys Ser Glu Val
-5 1 5

| | |
|-----|-----|
| CCT | 388 |
| Pro | |

(2) INFORMATION FOR SEQ ID NO: 78:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 291 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 79..285
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.7
seq FFKLLLLLGAMCSG/AR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 78:

| | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|-------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AAGACTTTTGA | CTGGAAGAGG | AGAAAGAACT | GCATGCTTGT | AACGGCCCCGG | ATGGGAGTGT | 60 | | | | | | | | | | |
| ATTCCCTTTTT | TTGAAGAT | ATG | TGT | AAA | GGC | ATT | AAA | GCT | GGT | GAC | ACC | TGT | 111 | | | |
| | | Met | Cys | Lys | Gly | Ile | Lys | Ala | Gly | Asp | Thr | Cys | | | | |
| | | | | | | -65 | | | | | | -60 | | | | |
| GAG | AAG | CTG | GTG | GGA | TAT | TCT | GCC | GTG | TAT | AGA | GTC | TGT | TTT | GGA | ATG | 159 |
| Glu | Lys | Leu | Val | Gly | Tyr | Ser | Ala | Val | Tyr | Arg | Val | Cys | Phe | Gly | Met | |
| | | | -55 | | | | | -50 | | | | | -45 | | | |
| GCT | TGT | TTC | TTC | TTT | ATC | TTC | TGT | CTA | CTG | ACC | TTG | AAA | ATC | AAC | AAC | 207 |
| Ala | Cys | Phe | Phe | Phe | Ile | Phe | Cys | Leu | Leu | Thr | Leu | Lys | Ile | Asn | Asn | |
| | | -40 | | | | | -35 | | | | | -30 | | | | |
| AGC | AAA | AGT | TGT | AGA | GCT | CAT | ATT | CAC | AAT | GGC | TTT | TGG | TTC | TTT | AAA | 255 |
| Ser | Lys | Ser | Cys | Arg | Ala | His | Ile | His | Asn | Gly | Phe | Trp | Phe | Phe | Lys | |
| | -25 | | | | | -20 | | | | | -15 | | | | | |
| CTT | CTG | CTG | TTG | GGG | GCC | ATG | TGC | TCA | GGA | GCA | AGG | | | | | 291 |
| Leu | Leu | Leu | Leu | Gly | Ala | Met | Cys | Ser | Gly | Ala | Arg | | | | | |
| -10 | | | | | -5 | | | | | 1 | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 79:

(1) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 402 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 61..372
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 6.6
 seq HFSHVWFHPTWA/QQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 79:

```

ATTTTCCCGG GTCTTCTCCA GCTGCCACCG CTTTACTGCA AACTGACGG GCGCAAAAAC   60
ATG AGT GAC TCC GCG GGA GGG CGC GCT GGT CTC CGG CGT TAC CCC AAG   108
Met Ser Asp Ser Ala Gly Gly Arg Ala Gly Leu Arg Arg Tyr Pro Lys
                    -100                    -95                    -90

CTC CCA GTG TGG GTG GTG GAG GAT CAT CAG GAG GTT CTA CCC TTT ATA   156
Leu Pro Val Trp Val Val Glu Asp His Gln Glu Val Leu Pro Phe Ile
                    -85                    -80                    -75

TAC CGG GCC ATA GGC TCA AAG CAT CTT CCT GCC AGT AAT GTA AGT TTT   204
Tyr Arg Ala Ile Gly Ser Lys His Leu Pro Ala Ser Asn Val Ser Phe
                    -70                    -65                    -60

TTA CAT TTC GAC TCA CAT CCA GAC CTC CTT ATT CCT GTG AAT ATG CCA   252
Leu His Phe Asp Ser His Pro Asp Leu Leu Ile Pro Val Asn Met Pro
                    -55                    -50                    -45

GCA GAC ACC GTG TTT GAT AAG GAA ACA CTC TTT GGA GAA TTA AGT ATT   300
Ala Asp Thr Val Phe Asp Lys Glu Thr Leu Phe Gly Glu Leu Ser Ile
                    -40                    -35                    -30                    -25

GAA AAT TGG ATT ATG CCT GCA GTT TAT GCT GGC CAT TTT TCA CAT GTA   348
Glu Asn Trp Ile Met Pro Ala Val Tyr Ala Gly His Phe Ser His Val
                    -20                    -15                    -10

GTA TGG TTT CAT CCC ACA TGG GCT CAG CAG ATC AGA GAG GGC AGA CAC   396
Val Trp Phe His Pro Thr Trp Ala Gln Gln Ile Arg Glu Gly Arg His
                    -5                    1                    5

CAC TTT
His Phe
10

```

(2) INFORMATION FOR SEQ ID NO: 80:

(1) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 338 base pairs

(B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 12..152
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 6.3
 seq SSCVLLTALVALA/AY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 80:

```

AAAACGCGTG A ATG AGT AGC TGC CGC GGG CAG AAA GTT GCC GGA GGT CTC      50
      Met Ser Ser Cys Arg Gly Gln Lys Val Ala Gly Gly Leu
                -45                      -40                      -35

CGG GTG GTA TCG CCC TTT CCT CTT TGC CAG CCC GCT GGC GAG CCG AGC      98
Arg Val Val Ser Pro Phe Pro Leu Cys Gln Pro Ala Gly Glu Pro Ser
                -30                      -25                      -20

CGG GGC AAG ATG AGG TCG TCC TGT GTC CTG CTC ACC GCC CTG GTG GCG     146
Arg Gly Lys Met Arg Ser Ser Cys Val Leu Leu Thr Ala Leu Val Ala
                -15                      -10                      -5

CTG GCC GCC TAT TAC GTC TAC ATC CCG CTG CCT GGC TCC GTG TCC GAC     194
Leu Ala Ala Tyr Tyr Val Tyr Ile Pro Leu Pro Gly Ser Val Ser Asp
                1                      5                      10

CCC TGG AAG CTG ATG CTG CTG GAC GCC ACT TTC CGG GGT GCA CAS MMD     242
Pro Trp Lys Leu Met Leu Leu Asp Ala Thr Phe Arg Gly Ala Xaa Xaa
                15                      20                      25                      30

NTA AGT RAC CTG GTC CAS TAC CTG GGA CTG AGC SRT CAC CTG CTG GCA     290
Xaa Ser Xaa Leu Val Xaa Tyr Leu Gly Leu Ser Xaa His Leu Leu Ala
                35                      40                      45

CTG ANN WTA WNA TTG TTT CTT TTG GCA AAA AAA GCG CGT GGT CTT CTG     338
Leu Xaa Xaa Xaa Leu Phe Leu Leu Ala Lys Lys Ala Arg Gly Leu Leu
                50                      55                      60

```

(2) INFORMATION FOR SEQ ID NO: 81:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 229 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 14..139
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.1
seq DLAVALSLLPAWT/ES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 81:

```

ATTAAAGTCA AAG ATG ATT ATT CCT TTC AAA ATA AAG AAT CTA GGA GGG      49
      Met Ile Ile Pro Phe Lys Ile Lys Asn Leu Gly Gly
                -40                      -35

CGA GTC CTG CTG TCG GGA AGG GAG ATG TTT CCT GCT TCC GTC CGT GCT      97
Arg Val Leu Leu Ser Gly Arg Glu Met Phe Pro Ala Ser Val Arg Ala
-30                -25                      -20                      -15

CCT GAC CTG GCG GTG GCC CTG TCC CTG CTA CCT GCG TGG ACA GAG TCT      145
Pro Asp Leu Ala Val Ala Leu Ser Leu Leu Pro Ala Trp Thr Glu Ser
                -10                      -5                      1

CCA ACA CGC GGC AGC CAC CAG AGC CAG GCC CGA GCG CAC AGC CGT GCA      193
Pro Thr Arg Gly Ser His Gln Ser Gln Ala Arg Ala His Ser Arg Ala
                5                      10                      15

TTG CGA AAG CAA AGC CGA AAC ACG AGG TCG CCC CGG      229
Leu Arg Lys Gln Ser Arg Asn Thr Arg Ser Pro Arg
      20                25                      30

```

(2) INFORMATION FOR SEQ ID NO: 82:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 249 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 70..228
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6
seq ALILLLLAQKGPS/XF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 82:

```

ACGTAAACAG AGGTAGTTAC AAGGAGTGTC TTGATAATGA AATTTGTGGT ATAGAGTACT      60

```

```

GGTGAATGT ATG GTG TGT AGT GCT CCT AGA AAA ATA GTA GTT AGG GCA TTT 111
    Met Val Cys Ser Ala Pro Arg Lys Ile Val Val Arg Ala Phe
                -50                -45                -40

ATT ACG ATA ATA TTC ATA TAT TAT GCT ATA AAG AAG AGG GCA AAT GAA 159
Ile Thr Ile Ile Phe Ile Tyr Tyr Ala Ile Lys Lys Arg Ala Asn Glu
                -35                -30                -25

CCT GCA GCA TAT TTG ATG TTG AAG CCT GAG GCT CTG ATT CTC CTT CTG 207
Pro Ala Ala Tyr Leu Met Leu Lys Pro Glu Ala Leu Ile Leu Leu Leu
                -20                -15                -10

TTA GCT CAA AAG GGC CCC AGT HAG TTT CTG TTA GTG TGG AGA 249
Leu Ala Gln Lys Gly Pro Ser Xaa Phe Leu Leu Val Trp Arg
                -5                1                5

```

(2) INFORMATION FOR SEQ ID NO: 83:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 289 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 110..229
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq VCSALCSLGEVRP/XE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 83:

```

ACCCTGCTGG GCGGGAAGGC GCGCCCCGG CCGAGGTGGC GCGGGCTCCT CAGATGGGAG 60

AAGAAGTTGT CCATGTTTAC ACTGGGTGAA GGAAGCTGAA ACCACAGAC ATG ACT GAG 118
                                Met Thr Glu
                                -40

TCC TCC ATG AAG AAG CTG GCC TCC ACC CTG CTG GAC GCC ATC ACC GAT 166
Ser Ser Met Lys Lys Leu Ala Ser Thr Leu Leu Asp Ala Ile Thr Asp
                -35                -30                -25

AAG GAC CCC CTG GTG CAG GAG CAG GTC TGC AGT GCC CTG TGC TCC CTC 214
Lys Asp Pro Leu Val Gln Glu Gln Val Cys Ser Ala Leu Cys Ser Leu
                -20                -15                -10

GGG GAG GTG CGG CCV VTG GAG ACG CTC CGT GCC TGC GAG GAG TAT CTG 262
Gly Glu Val Arg Pro Xaa Glu Thr Leu Arg Ala Cys Glu Glu Tyr Leu
                -5                1                5                10

GGG CAS ATG ACA AGC TGG CAC ACC CGG 289

```

Arg Xaa Met Thr Ser Trp His Thr Arg
 15 20

(2) INFORMATION FOR SEQ ID NO: 84:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 252 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 76..204
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq VFLFHCTSGGLSSC/KC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 84:

```

AGTARAACAA AAGGATATGC ACACACACAT ATTTAAATAC ATGTAGTTTT TTGCATAAAT      60
TATCACTGAG AGGAA ATG CAA GAA ACT GAT TGT AAT AAA CGC TGG GGA AGG      111
      Met Gln Glu Thr Asp Cys Asn Lys Arg Trp Gly Arg
                        -40                        -35

GGC CTG GGT GGC CTG TGG TCA GAA ACA GGA AGG AGA TTT CAT TGC AAA      159
Gly Leu Gly Gly Leu Trp Ser Glu Thr Gly Arg Arg Phe His Cys Lys
      -30                        -25                        -20

TCT TTT GTA TTT CTT TTT CAC TGT ACT TCT GGA TTA TCT TCA TGC AAA      207
Ser Phe Val Phe Leu Phe His Cys Thr Ser Gly Leu Ser Ser Cys Lys
      -15                        -10                        -5                        1

TGT TCT AAA AAG CAT TYM AAA TAT TGC TTC TGT TTT GTG GCA AGT      252
Cys Ser Lys Lys His Xaa Lys Tyr Cys Phe Cys Phe Val Ala Ser
              5              10              15

```

(2) INFORMATION FOR SEQ ID NO: 85:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 366 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 232..282
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.8
 seq VPWLSSTVSCAQG/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 85:

```

ATGAGTGGTC MGGAGATAAC ACTTAATGCT TTATTCTTAA GTGTTGGAAG GAGCAAGTAA   60
GTGGTCTAGT GAGCTGTTTT TAGAGGAACT GTATAATATG TAACACATTG TCATTATATT  120
CACTAACTCC CAAAGTATTC TTGAGATATT GANACAAAAC AAAGAGCTTG AATAGAAACC  180
CTGAGCAACA ATGTATTTAC TTTCCACTTG CAGCAGAACT TGGCCTTTCA G ATG CTC   237
                                     Met Leu
CTT GAA GTG CCT TGG CTT AGC AGT ACT GTC TCT TGT GCC CAG GGT CTG   285
Leu Glu Val Pro Trp Leu Ser Ser Thr Val Ser Cys Ala Gln Gly Leu
-15                      -10                      -5                      1
AGA TTG GCA CAA CAC AGA GTG CCT TTC TTT TAT TCA AAT GTC TCA TTA   333
Arg Leu Ala Gln His Arg Val Pro Phe Phe Tyr Ser Asn Val Ser Leu
                    5                      10                      15
TGC AAA TTA TTG CTG CCA GCC AMM CTG CAC GGG   366
Cys Lys Leu Leu Leu Pro Ala Xaa Leu His Gly
                20                      25
  
```

(2) INFORMATION FOR SEQ ID NO: 86:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 437 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 123..209
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.7
 seq SPAFLAVAGPGWA/RP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 86:

```

AAGTGTCCCA TGCTGGTCTG TGGGGACTCC ATGTCCAAAC ACGCAGATCC TGCCTCCCAG   60
  
```

```

GCTTTAATTG ATCCTGCTGC CCTCTGGGAG CACCCACACA AGCCAGGCTC TCACTGGACC 120
TC ATG TCT GGA GGG CGG ATG CAG GCA CGG TGC TCC CAG CAA AGC ACC 167
  Met Ser Gly Gly Arg Met Gln Ala Arg Cys Ser Gln Gln Ser Thr
      -25                -20                -15

TGG AGT CCT GCC TTC CTT GCA GTG GCC GGG CCG GGC TGG GCA CGT CCT 215
Trp Ser Pro Ala Phe Leu Ala Val Ala Gly Pro Gly Trp Ala Arg Pro
      -10                -5                1

GGC TGT DCC CTG AGG ACC AAG TAT GAC TCT CAG CTG GCC CGG CAC CTC 263
Gly Cys Xaa 5 Leu Arg Thr Lys Tyr Asp Ser Gln Leu Ala Arg His Leu
      5                10                15

TTG CAG CCT CAG TTC CCT GGT CTG ACC CTT GGG ACC CTG GTG CAA CCT 311
Leu Gln Pro Gln Phe Pro Gly Leu Thr Leu Gly Thr Leu Val Gln Pro
      20                25                30

GCC CAC TGG GGC ATG GGA GGG GGC ACA GGA GGG GTC TTG GGC GAG GGA 359
Ala His Trp Gly Met Gly Gly Gly Thr Gly Gly Val Leu Gly Glu Gly
      35                40                45                50

GGG GGG CAC AGC TAT GCA GAG CAT GGC ACC TGC CTC CAG TCG TGC TCC 407
Gly Gly His Ser Tyr Ala Glu His Gly Thr Cys Leu Gln Ser Cys Ser
      55                60                65

ACA GAC GTG CTD ANG CAT GTC CTC CTG GCG 437
Thr Asp Val Leu Xaa His Val Leu Leu Ala
      70                75

```

(2) INFORMATION FOR SEQ ID NO: 87:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 437 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 63..116
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq WHFLASFFPRAGC/HG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 87:

```

AACTGTGGTC ACATCCCTCA AAAGTGAACA GTCGCCATCG GAGGCGTTTG GAGGAGACCG 60
TG ATG TTG CAG ATG CTG TGG CAT TTC CTA GCT AGC TTT TTC CCC AGG 107
  Met Leu Gln Met Leu Trp His Phe Leu Ala Ser Phe Phe Pro Arg
      -15                -10                -5

```

```

GCT GGG TGC CAC GGC TCC AGA GAG GGG GAC GAT CGT GAA GTC AGA GGC      155
Ala Gly Cys His Gly Ser Arg Glu Gly Asp Asp Arg Glu Val Arg Gly
          1                      5                      10

ACC CCA GCC CCT GCC TGG AGA GAC CAG ATG GCA AGC TTT TTG GGG AAA      203
Thr Pro Ala Pro Ala Trp Arg Asp Gln Met Ala Ser Phe Leu Gly Lys
          15                      20                      25

CAG GAC GGA AGG GCT GAG GCC ACG GAA AAA AGA CCC ACC ATT TTG CTG      251
Gln Asp Gly Arg Ala Glu Ala Thr Glu Lys Arg Pro Thr Ile Leu Leu
          30                      35                      40                      45

GTG GTT GGA CCT GCA GAG CAG TTT CCT AAG AAA ATT GTA CAA GCT GGA      299
Val Val Gly Pro Ala Glu Gln Phe Pro Lys Lys Ile Val Gln Ala Gly
          50                      55                      60

GAT AAG GAC CTT GAT GGG CAG CTA GAC TTT GAA GAA TTT GTC CAT TAT      347
Asp Lys Asp Leu Asp Gly Gln Leu Asp Phe Glu Glu Phe Val His Tyr
          65                      70                      75

CTC CAA GAT CAT GAG AAG AAG CTG AGG CTG GTG TTT AAG AGT TTG GAC      395
Leu Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ser Leu Asp
          80                      85                      90

AAA AAG AAT GAT GGA CGC ATT GAC GCG CAG GAG ATC ATG CAG              437
Lys Lys Asn Asp Gly Arg Ile Asp Ala Gln Glu Ile Met Gln
          95                      100                      105

```

(2) INFORMATION FOR SEQ ID NO: 88:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 113 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 3..62
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq SLVCLLAMGKGLG/SS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 88:

```

AC ATG TAT TCC CAT CCC GTG TCC TCA CTG GTG TGT CTC CTG GCC ATG      47
Met Tyr Ser His Pro Val Ser Ser Leu Val Cys Leu Leu Ala Met
-20                      -15                      -10

GGC AAG GGA CTC GGG TCA TCC CAG GCC CTG GTC CAG CCA GAC ACC TGG      95
Gly Lys Gly Leu Gly Ser Ser Gln Ala Leu Val Gln Pro Asp Thr Trp

```

-5

1

5

10

CCC CAC ACC TCC CCG CGG
 Pro His Thr Ser Pro Arg
 15

113

(2) INFORMATION FOR SEQ ID NO: 89:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 87..191
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq FIFMEVLGSGAFS/EV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 89:

```

AACAGACCTG TACGAGCTGG AGTGGGAGCT CAAGCAGGAT TCTTCCCGAG TCCCTGGCAT      60
CCTCAGAAGC TTCAACTCTG GAGGCA ATG GGT CGA AAG GAA GAA GAT GAC TGC      113
               Met Gly Arg Lys Glu Glu Asp Asp Cys
               -35                      -30

AGT DCC TGG AAG AAA CAG ACC ACC AAC ATC CGG AAA ACC TTC ATT TTT      161
Ser Xaa Trp Lys Lys Gln Thr Thr Asn Ile Arg Lys Thr Phe Ile Phe
   -25                      -20                      -15

ATG GAA GTG CTG GGA TCA GGA GCT TTC TCA GAA GTT TTC CTG GTG AAG      209
Met Glu Val Leu Gly Ser Gly Ala Phe Ser Glu Val Phe Leu Val Lys
-10                      -5                      1                      5

CAA AGA CTG ACT GGG AAG CTC TTT GCT CTG AAG TGC ATC AAG AAG TCA      257
Gln Arg Leu Thr Gly Lys Leu Phe Ala Leu Lys Cys Ile Lys Lys Ser
          10                      15                      20

CCT GCC TTC CGG GAC AGC AGC CTG GAG AAT GAG ATT GCT GTG TTG AAA      305
Pro Ala Phe Arg Asp Ser Ser Leu Glu Asn Glu Ile Ala Val Leu Lys
          25                      30                      35

AAG ATC AAG CAT GAA AAC ATT GTG ACC CTG GAG GAC ATC TAT GAG AGC      353
Lys Ile Lys His Glu Asn Ile Val Thr Leu Glu Asp Ile Tyr Glu Ser
          40                      45                      50

ACA CAA GGG
Thr Gln Gly
55

```

362

(2) INFORMATION FOR SEQ ID NO: 90:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 384 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 241..327
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq LLPNQSLFSLARA/VR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 90:

```

AAGCGGCGCA CCGGGHGAAG ATGGCGTTGG AGGTCGGCGA TATGGAAGAT GGGCAGCTTT      60
CCGACTCGGA TTCCGACATG ACGGTCGCAC CCAGCGACAG GCCGCTGCAA TTGCCAAAAG     120
TGCTAGGTGG CGACAGTGCT ATGAGGGCCT TCCAGAACAC GGCAACTGCA TGTGCACCAG     180
TATCACATTA TCGAGCTGTT GAAAGTGTGG ATTCAAGTGA AGAAAGTTTT TCTGATTGAG     240
ATG ATG ATA GCT GTC TTT GGA AAC GCA AAC GAC AGA AAT GTT TTA ACC      288
Met Met Ile Ala Val Phe Gly Asn Ala Asn Asp Arg Asn Val Leu Thr
      -25                      -20                      -15

CTC CTC CCA AAC CAG AGC CTT TTC AGT TTG GCC AGA GCA GTC AGA AAC      336
Leu Leu Pro Asn Gln Ser Leu Phe Ser Leu Ala Arg Ala Val Arg Asn
      -10                      -5                      1

CAC CTG TTG CTG GAG GAA AGA AGA TTA ACA ACA TAT GGG GTG CTG TGC      384
His Leu Leu Leu Glu Glu Arg Arg Leu Thr Thr Tyr Gly Val Leu Cys
      5                      10                      15

```

(2) INFORMATION FOR SEQ ID NO: 91:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 314 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 141..197
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.6
seq LVVTAWFFGMCRS/KA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 91:

```
ATCCCAGAAC ACCATTGGGA GAACGCCAGG ACACCGTGAA GGCTGAGCCG CCACTCGGTT    60
CTGATGCCGC ATCCATTGGT CAGTGCACGT TCTTTGAGCT TCCACTTGAG TGCACGTTCT    120
TTGAGCTTCC ACTTGAGTGC ATG TTC TTT GAG CTT CCA CTT GTA GTG ACT GCC    173
           Met Phe Phe Glu Leu Pro Leu Val Val Thr Ala
           -15                               -10

TGG TTC TTC GGG ATG TGC AGG AGC AAA GCG CTC TTA GGC AAT GCT CGT    221
Trp Phe Phe Gly Met Cys Arg Ser Lys Ala Leu Leu Gly Asn Ala Arg
           -5                               1                               5

TCT GCC CTG TGT TTA CAA ACC AAG GCC TGT GCC AGC TCT ACT CAG CCT    269
Ser Ala Leu Cys Leu Gln Thr Lys Ala Cys Ala Ser Ser Thr Gln Pro
           10                               15                               20

GAC ACC CAT AAT GAG CAC CAT CCC AGG AAT CCC TGT CCC TAC TTG    314
Asp Thr His Asn Glu His His Pro Arg Asn Pro Cys Pro Tyr Leu
           25                               30                               35
```

(2) INFORMATION FOR SEQ ID NO: 92:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 316 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 155..286
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.5
seq FLLIVANVHFSQT/WV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 92:

```
ATAAATAGCA TTGTTTACAT CGACCAAATA TTGCCTGTTT CCTTTAATTC AAATGCATTA    60
GGTCCCCGCC TCCCTCTCCT TCCCCGCCAT GTTGCTGTTT TAAGGCTTCA TATGTATTAA    120
```

CATTTCTCTG ATCAAAATTG TGGCTGTTTT CCTT ATG AAC CAT AAT ATA ATC ATT 175
 Met Asn His Asn Ile Ile Ile
 -40

TGT GTG ATG TAC ATT GTG CCA TTT TTG ATG ACT AAA TGT CTA TAT TTC 223
 Cys Val Met Tyr Ile Val Pro Phe Leu Met Thr Lys Cys Leu Tyr Phe
 -35 -30 -25

TGC CAT TCC TGT AAG AGA GGG AGT TTT TTA CTG ATA GTA GCA AAT GTT 271
 Cys His Ser Cys Lys Arg Gly Ser Phe Leu Leu Ile Val Ala Asn Val
 -20 -15 -10

CAC TTC AGT CAA ACT TGG GTG TTC AGT GGT AAA CCA TAT AAA GGG 316
 His Phe Ser Gln Thr Trp Val Phe Ser Gly Lys Pro Tyr Lys Gly
 -5 1 5 10

(2) INFORMATION FOR SEQ ID NO: 93:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 405 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 247..309
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5
seq LTGLCXCCCLQALG/LA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 93:

ATTGTCTTAG TCCCATCCTC TGTTCCCCTG GCCAGTTTGT CTAGCTGTGT GGTCTCTGTT 60

CTCTCCCTAC CGTGCCTTCC ATCCCAGCCA TCCCTGACTA CGTGTTTCCC CCACAGACAT 120

CACACTGGTT CACCTCGTTG ACCACCGTTT CCTTCTCCCC AAGTCTCCCG GGCAAGGGCT 180

GATTCTCCAG TCTCCTCTGG GAAGCTGGCC CTGAACCACT TAGAACCTAT CGCTCCTTCG 240

TCACCT ATG TCA TGT GGC AGC GCT GCC TCA CTT ACG GGT CTG TGT KSG 288
 Met Ser Cys Gly Ser Ala Ala Ser Leu Thr Gly Leu Cys Xaa
 -20 -15 -10

TGC TGC CTC CAA GCC CTG GGG CTT GCG TGG CGC CGT CGC GGT TTG ACG 336
 Cys Cys Leu Gln Ala Leu Gly Leu Ala Trp Arg Arg Arg Gly Leu Thr
 -5 1 5

GGA CCG GGC CTC CCC CCT GTG TTG CAG ATA TGC TGT CCA AGG AGC CTC 384
 Gly Pro Gly Leu Pro Pro Val Leu Gln Ile Cys Cys Pro Arg Ser Leu

| | | | | |
|-----------------------------|----|----|----|-----|
| 10 | 15 | 20 | 25 | |
| CGT GGT GTG ACG GCT CCT ACT | | | | 405 |
| Arg Gly Val Thr Ala Pro Thr | | | | |
| 30 | | | | |

(2) INFORMATION FOR SEQ ID NO: 94:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 302 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 99..236
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.4
seq VLFFVGLITNGLA/MR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 94:

| | |
|--|-----|
| AAAAATACCA GATGCCACTC TGCAGGCTGC AATAACTACT ACTTACTGGA TACATTCAAA | 60 |
| CCCTCCAGAA TCAACAGTTA TCAGGTAACC AACAAAGAA ATG CAA GCC GTC GAC AAC | 116 |
| Met Gln Ala Val Asp Asn | |
| -45 | |
| CTC ACC TCT GCG CCT GGG AAC ACC AGT CTG TGC ACC AGA GAC TAC AAA | 164 |
| Leu Thr Ser Ala Pro Gly Asn Thr Ser Leu Cys Thr Arg Asp Tyr Lys | |
| -40 -35 -30 -25 | |
| ATC ACC CAG GTC CTC TTC CCA CTG CTC TAC ACT GTC CTG TTT TTT GTT | 212 |
| Ile Thr Gln Val Leu Phe Pro Leu Leu Tyr Thr Val Leu Phe Phe Val | |
| -20 -15 -10 | |
| GGA CTT ATC ACA AAT GGC CTG GCG ATG AGG ATT TTC TTT CAA ATC CGG | 260 |
| Gly Leu Ile Thr Asn Gly Leu Ala Met Arg Ile Phe Phe Gln Ile Arg | |
| -5 1 5 | |
| AGT AAA TCA AAC TTT ATT ATT TTT CTT AAG AAC ACA GTS AAG | 302 |
| Ser Lys Ser Asn Phe Ile Ile Phe Leu Lys Asn Thr Val Lys | |
| 10 15 20 | |

(2) INFORMATION FOR SEQ ID NO: 95:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 99 base pairs
- (B) TYPE: NUCLEIC ACID

- (C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 16..75
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.3
seq LCSSCCSWGPAAG/AL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 95:

```
AGAAGTAGCC GCAGG ATG GCG GCG GCT ATG CSS TTG CTC TGC TCG TCC TGT    51
      Met Ala Ala Ala Met Xaa Leu Leu Cys Ser Ser Cys
      -20                      -15                      -10

TGC TCC TGG GGC CCG GCG GCT GGT GCC TTG CAG AAC CCC CAA CGC GGG    99
Cys Ser Trp Gly Pro Ala Ala Gly Ala Leu Gln Asn Pro Gln Arg Gly
      -5                      1                      5
```

(2) INFORMATION FOR SEQ ID NO: 96:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 396..470
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.3
seq SVVKVLSLRKAQA/QS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 96:

```
ATTTCTGCCC ACGGGCATAA GTTCAAAAGA AAGCTGCGAA AAGTTGGAGA CTGCTGATGA    60
AACCASTCAT CTCCAGCCAC TCAACAAGCG TCAGAGGACA AGCTCTGTGG TGGAAGAGCA   120
TTTCCAAGCC TCAGTATCTC CCACTGAAGC CGCACCCCCT GCCACAGGAG ACCAGAGTCC   180
TGGCCTGGGC ACCCAGCCAA AGCTGCCATC CAGCAGTGGC CTTCTGCTG CAGACGTGTC   240
```

```

CCCTGCCACA GCTGAAGAGC CCTTGTACACC TTCCACACCC ACCCGCCGGC CTCCCTTCAC 300
CCGAGGGCGA CTCCGGCTGC TCTCCTTTTCG ATCCATGGAG GAGGCCAGAC TGGTGCCAC 360
AGTGAAAGAS CAAATACCCT GTGCTGAAGG ACGTC ATG GAC TTC ATT AAG GAT 413
                               Met Asp Phe Ile Lys Asp
                               -25                               -20
CAG TCG CTC TCG CAC AGG AGT GTT GTG AAG GTT CTT TCC CTG AGG AAA 461
Gln Ser Leu Ser His Arg Ser Val Val Lys Val Leu Ser Leu Arg Lys
                               -15                               -10                               -5
GCC CAG GCC CAG AGC ATC CTG GAA 485
Ala Gln Ala Gln Ser Ile Leu Glu
                               1                               5

```

(2) INFORMATION FOR SEQ ID NO: 97:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 283 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 59..142
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.3
seq RISCAFSLASSTA/RQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 97:

```

AGTGTGTGAA GCGTACCTAR GGC GGGAGGC GACATGGWGA CAGGGGCGGY CGWGCTGT 58
ATG ACC AGG CCC TTT TGG GCA TCC TGC AGC ACG TGG GCA ACG TCC AGG 106
Met Thr Arg Pro Phe Trp Ala Ser Cys Ser Thr Trp Ala Thr Ser Arg
-25 -20 -15
ATT TCC TGC GCG TTC TCT TTG GCT TCC TCT ACC GCA AGA CAG ACT TCT 154
Ile Ser Cys Ala Phe Ser Leu Ala Ser Ser Thr Ala Arg Gln Thr Ser
-10 -5 1
ATC GCT TGC TGC GCC ACC CAT CGG ACC GCA TGG GCT TCC CGC CCG GGG 202
Ile Ala Cys Cys Ala Thr His Arg Thr Ala Trp Ala Ser Arg Pro Gly
5 10 15 20
CCG CGC AGG CCT TGG TGC TGC AGG TAT TCA AAA CCT TTG ACC ACA TGG 250
Pro Arg Arg Pro Trp Cys Cys Arg Tyr Ser Lys Pro Leu Thr Thr Trp
25 30 35
CCC GTC AGG ATG ATG AGA AGA GAA GGC AGY KGA 283

```

Pro Val Arg Met Met Arg Arg Glu Gly Ser Xaa
 40 45

(2) INFORMATION FOR SEQ ID NO: 98:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 390 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 286..333
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.3
seq CAVSLTTAAVAFG/DE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 98:

```

ACTNTGTGCT GGTGCTGGCA AAGTTTGTGA TTTTAAGAAA TTCTGCTGTG CTCTCCAGCA    60
CTGCGAGCTT CTGCCTTCCC TGTAGTTTCC CAGATGTGAT CCAGGTAGCC GAGATTCCGC    120
TGCCCGTGCT TCGGTAGCTT AAGTCTTTGC CTCAGCTTTT TTCCTTGCAG CCGCTGAGGA    180
GGCGATAAAA TTGGCGTCAC AGTCTCAAGC AGCGATTGAA GGCGTCTTTT CAACTACTCG    240
ATTAAGGTTG GGTATCGTCG TGGGACTTGG AAATTTGTTG TTTCC ATG AAA TCC TGC    297
                                   Met Lys Ser Cys
                                   -15

GCA GTG TCG CTC ACT ACC GCC GCT GTT GCC TTC GGT GAT GAG GCA AAG    345
Ala Val Ser Leu Thr Thr Ala Ala Val Ala Phe Gly Asp Glu Ala Lys
      -10                -5                1

AAA ATG GCG GAA GGA AAA GCG AGC CGC GAG AGT GAA GAG GAG ACG    390
Lys Met Ala Glu Gly Lys Ala Ser Arg Glu Ser Glu Glu Glu Thr
  5                10                15

```

(2) INFORMATION FOR SEQ ID NO: 99:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 254 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 138..200
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq LSLSLICLRMSLS/LY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 99:

```
ATGTGATTWT KTTCTATTT ATTTTAAATA CACACACCCA CAGGGCTCTG CCCCTGTAAA   60
AGAAAAAAAA TCAAACAAA CAAATAAATA ACCCCAAAGA GATGGACCCA GGGGAGAACG  120
CGTAAGTRTG AAGGGGC ATG AGT ATA CAC GAG TGT GCG TGT CTT TCC CTC   170
              Met Ser Ile His Glu Cys Ala Cys Leu Ser Leu
              -20                               -15

TCC CTT ATT TGT CTC CGT ATG AGT CTC TCC TTG TAC CCT CCC CCT GCC   218
Ser Leu Ile Cys Leu Arg Met Ser Leu Ser Leu Tyr Pro Pro Pro Ala
-10              -5                               1                               5

TCG ATG ATA TTA CTC CCC CAG ACT TGG AAG CCG CGC   254
Ser Met Ile Leu Leu Pro Gln Thr Trp Lys Pro Arg
              10                               15
```

(2) INFORMATION FOR SEQ ID NO: 100:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 303 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 178..222
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq SGLSFLSVFSLWC/EP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 100:

```
AAGATCTRGA ARCAGTRACC CTCTCTCTTT GCATRAGTTT CTCTTTTTTC TCTGAGTTAC   60
AGTTTTGARR RCAGCWRCTA ATTTTTTTTAA TCCCTCGAAT AACTCAGTTT TAGGAACATT  120
CGCTCTCCCT AAGCCTTACC TTGAAACCAG TGTAGGATTT TGCTGCCACC CCGGAAG   177
```


| | |
|---|-----|
| ATG CTG AGT GGA CTC AGC TTC CTA TCC GTT TTC TCC CTC TGG TGT GAG | 225 |
| Met Leu Ser Gly Leu Ser Phe Leu Ser Val Phe Ser Leu Trp Cys Glu | |
| -15 -10 -5 1 | |
| | |
| CCC ACA CTC CCG GCG CTG GGA AAT GGC TCT GTT CTA GGA GTG CGG CWR | 273 |
| Pro Thr Leu Pro Ala Leu Gly Asn Gly Ser Val Leu Gly Val Arg Xaa | |
| 5 10 15 | |
| | |
| TCA TCC TCT TCC TCT GCC CAG TGC TCT CTG | 303 |
| Ser Ser Ser Ser Ser Ala Gln Cys Ser Leu | |
| 20 25 | |

(2) INFORMATION FOR SEQ ID NO: 101:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 380 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 120..374
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.2
seq LYSILHFPEWVHG/RX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 101:

| | |
|---|-----|
| AACTTTGATG GAATCAAAGG TCATGGGCGC CAGGGCAGCT GTTCCCACAT GCAGGTGGGG | 60 |
| | |
| GCCCGCCCTT TGTTACACACC TACATTCAAG GAATTCTGTT GGGCTCATAA TTCGTTGTG | 119 |
| | |
| ATG GGG TTA AAG GAC AAA TCT CAG GCC CCC GCC TCA GGA CTG GGA GTT | 167 |
| Met Gly Leu Lys Asp Lys Ser Gln Ala Pro Ala Ser Gly Leu Gly Val | |
| -85 -80 -75 -70 | |
| | |
| CTC CGA GGG CAA AGG TCG GGC TCA TTC ATT TCT ATG CCT GCC CCA GCC | 215 |
| Leu Arg Gly Gln Arg Ser Gly Ser Phe Ile Ser Met Pro Ala Pro Ala | |
| -65 -60 -55 | |
| | |
| TCA GGC CAG TKC CCG GAA GAA AGC AGG TCC CCA GCT CCA CCA GTG GCT | 263 |
| Ser Gly Gln Xaa Pro Glu Glu Ser Arg Ser Pro Ala Pro Pro Val Ala | |
| -50 -45 -40 | |
| | |
| TCT AGG TCT CAG AAC AGA GGC TAC AGA CCG TGG CAT GGG CCC CTT TGG | 311 |
| Ser Arg Ser Gln Asn Arg Gly Tyr Arg Pro Trp His Gly Pro Leu Trp | |
| -35 -30 -25 | |
| | |
| GTC CAC CAA AGT GTT CGG TTT GGA CTT TAC AGC ATT TTG CAT TTT CCT | 359 |
| Val His Gln Ser Val Arg Phe Gly Leu Tyr Ser Ile Leu His Phe Pro | |

| | | | |
|-----------------------------|-----|-----|-----|
| -20 | -15 | -10 | |
| TTT TGG GTT CAC GGC CGA YAG | | | 380 |
| Phe Trp Val His Gly Arg Xaa | | | |
| -5 | 1 | | |

(2) INFORMATION FOR SEQ ID NO: 102:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 265 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 65..193
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.2
seq PMQLLQVLSDVLA/EI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 102:

| | |
|---|-----|
| AATGCCAGTA TTAAGGATTT TTTTTTCTAT TTTTACTCTT TAGTTAAAAT TATAAGACCT | 60 |
| AATT ATG AGT GAT CAA ATT AAA TTC ATT ATG GAC AGT CTC AAT AAG GAG | 109 |
| Met Ser Asp Gln Ile Lys Phe Ile Met Asp Ser Leu Asn Lys Glu | |
| -40 -35 -30 | |
| CCC TTT AGG AAG AAC TAT AAT TTA ATC ACG TTT GAT TCC TTG GAG CCA | 157 |
| Pro Phe Arg Lys Asn Tyr Asn Leu Ile Thr Phe Asp Ser Leu Glu Pro | |
| -25 -20 -15 | |
| ATG CAA CTA TTA CAA GTT CTC AGT GAT GTT CTG GCT GAG ATT GAC CCA | 205 |
| Met Gln Leu Leu Gln Val Leu Ser Asp Val Leu Ala Glu Ile Asp Pro | |
| -10 -5 1 | |
| AAG GTA AGA GTT TTC TCT TTC TTT TTG ATG GGT AGC AGA AAG CCA ATT | 253 |
| Lys Val Arg Val Phe Ser Phe Phe Leu Met Gly Ser Arg Lys Pro Ile | |
| 5 10 15 20 | |
| TCT CCC TCT TGG | 265 |
| Ser Pro Ser Trp | |

(2) INFORMATION FOR SEQ ID NO: 103:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 354 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 25..336

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 5.1
seq SSVASLTATPSLA/SP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 103:

| | |
|---|-----|
| AAACCTTGTA CAACACCGGC CGAC ATG TCT CCT TCC TGC CTG CAC CCC GAC | 51 |
| Met Ser Pro Ser Cys Leu His Pro Asp | |
| -100 | |
| CTG TGG TCA ATG TGT CTG GAG GTC CCC TCC TTT ACA GCC ACC GAC TCA | 99 |
| Leu Trp Ser Met Cys Leu Glu Val Pro Ser Phe Thr Ala Thr Asp Ser | |
| -95 -90 -85 -80 | |
| GTG AAC TGC GGC TGC TGT TTG GAG CTC GCG ACG GAG CCG GCT CGG AAC | 147 |
| Val Asn Cys Gly Cys Cys Leu Glu Leu Ala Thr Glu Pro Ala Arg Asn | |
| -75 -70 -65 | |
| ATC AGA TCA ACC ACC AGG GCT TCT CTG CTG AGG TGC AGC TCA TTC ACT | 195 |
| Ile Arg Ser Thr Thr Arg Ala Ser Leu Leu Arg Cys Ser Ser Phe Thr | |
| -60 -55 -50 | |
| TCA ACC AGG AAC TCT ACG GGA ATT TCA GCG CTG CCT CCC GCG GCC CCA | 243 |
| Ser Thr Arg Asn Ser Thr Gly Ile Ser Ala Leu Pro Pro Ala Ala Pro | |
| -45 -40 -35 | |
| ATG GCC TGG CCA TTC TCA GCC TCT TTG TCA ACG TTG CCA GTA CCT CTA | 291 |
| Met Ala Trp Pro Phe Ser Ala Ser Leu Ser Thr Leu Pro Val Pro Leu | |
| -30 -25 -20 | |
| ACC CAT TCC TCA GTC GCC TCC TTA ACC GCG ACA CCA TCA CTC GCA TCT | 339 |
| Thr His Ser Ser Val Ala Ser Leu Thr Ala Thr Pro Ser Leu Ala Ser | |
| -15 -10 -5 1 | |
| CCT ACA AGA ATG ATG | 354 |
| Pro Thr Arg Met Met | |
| 5 | |

(2) INFORMATION FOR SEQ ID NO: 104:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 226 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 155..202
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.1
seq SFHLLLDPSSTQS/SI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 104:

```

AACTCTGGAA TGAAGGGGGG AATTACGGGT TGGTGGTCGG CTTCATGTTA GGAGGACACC   60
CCTCCATCTG TTCACAGCTC AGCCTGTTTC CAATTAAAG CCCAGAAGAA GCCTTCCCAG   120
CCTACTCAGA ATCCACATC CTCTCCTCTC TCTT ATG GAT CTC AGT TTT CAT TTA   175
                               Met Asp Leu Ser Phe His Leu
                               -15                      -10

TTA CTA GAT CCT TCC TCT ACT CAA TCA AGC ATA CTG AAG CAC CTC CCA   223
Leu Leu Asp Pro Ser Ser Thr Gln Ser Ser Ile Leu Lys His Leu Pro
              -5                      1                      5

TGT
Cys
                                                    226

```

(2) INFORMATION FOR SEQ ID NO: 105:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 289..366
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5
seq VISVLILVGFGAC/IY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 105:

```

ATCTCTGATG GGCAGGGAGA GATACCAGGG TGCTGAGCCA GTCCAGGACT GCCCCCTCCT   60
GGCCCACTCA GAGCCCCTGG GTGTGAGAAG CTCGTCTCCC GTGGGTTGCA TTGGCTCTGC   120
CCTATCTCTG CCTCCAGCAC CCAGGGCGGC CGCAGATGGC AGTGTCTCTG GGGACAGCAG   180

```

```

CTGCGAATGA GTCCACGGGC CAACGCTGAG CTGCTCAGGC TGAGGCGGTG TGCTCAGCAC 240
AGAGCCCCCG GAACTGGCAT CTGCAGGGCG TGAGCCAARG CCGCCGCG ATG CCG CAC 297
                                         Met Pro His
                                         -25

TTC CTG GAC TGG TTC GTG MCG GTC TAC TTG GTC ATC TCG GTC CTC ATT 345
Phe Leu Asp Trp Phe Val Xaa Val Tyr Leu Val Ile Ser Val Leu Ile
-20 -15 -10

CTG GTG GGC TTC GGC GCC TGC ATC TAC TAC TTC GAG CCG GGC CTG CAG 393
Leu Val Gly Phe Gly Ala Cys Ile Tyr Tyr Phe Glu Pro Gly Leu Gln
-5 1 5

GAG GCG CAC AAG TGG CGC ATG YAG CGC CCC TGG TGG ACC GCG ACC TCC 441
Glu Ala His Lys Trp Arg Met Xaa Arg Pro Trp Trp Thr Ala Thr Ser
10 15 20 25

ACT GGG 447
Thr Gly

```

(2) INFORMATION FOR SEQ ID NO: 106:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 195 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 79..168
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5
seq IVGLLAQLEKINA/EP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 106:

```

AACAGAAAGA TGACTTAAAG AACGTGGGGA GTCGCTCGCA GTTCGATTAT CTGCAATTAT 60
GAAATGAAGT AACTCAAG ATG AGC AAG TTA AAA GTG ATA CCA GAA AAA AGC 111
          Met Ser Lys Leu Lys Val Ile Pro Glu Lys Ser
          -30 -25 -20

CTT ACC AAT AAT TCT AGG ATC GTA GGA CTC CTG GCT CAA CTG GAG AAG 159
Leu Thr Asn Asn Ser Arg Ile Val Gly Leu Leu Ala Gln Leu Glu Lys
-15 -10 -5

ATC AAT GCT GAG CCT TCA GAA TCW GAC ACT AGC CGG 195
Ile Asn Ala Glu Pro Ser Glu Ser Asp Thr Ser Arg
1 5

```

(2) INFORMATION FOR SEQ ID NO: 107:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 166 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 38..106
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5
seq LIPAMAFLLSCVRP/ES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 107:

```

AACTGCTGCT CACAGAAGCA GTGAGGATGA TGCCAGG ATG ATG TCT GCC TCG CGC      55
                                     Met Met Ser Ala Ser Arg
                                     -20

CTG GCT GGG ACT CTG ATC CCA GCC ATG GCC TTC CTC TCC TGC GTG AGA      103
Leu Ala Gly Thr Leu Ile Pro Ala Met Ala Phe Leu Ser Cys Val Arg
      -15                      -10                      -5

CCA GAA AGC WGG GAG CCC TGC GTG GAG GTG GTT CCT AAT ATT ACT TAT      151
Pro Glu Ser Xaa Glu Pro Cys Val Glu Val Val Pro Asn Ile Thr Tyr
      1                      5                      10                      15

CAA TGC ATG GAG CTG      166
Gln Cys Met Glu Leu
      20

```

(2) INFORMATION FOR SEQ ID NO: 108:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 278 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: 84..230
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.9
 seq VTVCCXLVAFLFC/IL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 108:

```

AARAGACTCC GCCCCCTTCC TTGGAGCGCC GCGNCTCGGG CTGAGGGAGC TCGGGCCAAT   60
CAGAGGGACG GCCCCAGART GGC ATG GTA GAT GGA ACG CAG CTG AGA GGT CTG   113
               Met Val Asp Gly Thr Gln Leu Arg Gly Leu
                        -45                               -40

ACA AGA ATG TAC CAG GTC CCA CTA MCA CTG GAT CGG GAT GAG ACC CTG   161
Thr Arg Met Tyr Gln Val Pro Leu Xaa Leu Asp Arg Asp Glu Thr Leu
                -35                               -30               -25

GTA CGG CTC CGC TTC ACC ATG GTG GCC CTG GTC ACG GTC TGC TGT MCA   209
Val Arg Leu Arg Phe Thr Met Val Ala Leu Val Thr Val Cys Cys Xaa
                -20                               -15               -10

CTT GTC GCC TTC CTC TTC TGC ATC CTC TGG TCC CTG CTC TTC CAC TTC   257
Leu Val Ala Phe Leu Phe Cys Ile Leu Trp Ser Leu Leu Phe His Phe
                -5                               1               5

AAG GAG ACA ACG GCC ACA GGG   278
Lys Glu Thr Thr Ala Thr Gly
10                               15
  
```

(2) INFORMATION FOR SEQ ID NO: 109:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 217 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 116..193
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.9
seq LISMLQMLAVIIT/NT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 109:

```

ACTTGAAGTT CYYCTGGGGG CAATGAGATG GCAGCTATAC AGCGAGTCTG AAAAGAACAT   60
CCACATTCCT AATCCCTAGG AATATGATTA TTGGAAATA GATATAATTA TACAA ATG   118
                                   Met
  
```


| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Asp | Ile | Glu | Asp | Gln | Leu | Ile | Gln | Lys | Val | Arg | Glu | Ser | Lys | Trp | |
| | 25 | | | | | | 30 | | | | | 35 | | | | |
| TTT | GCC | CTT | CAG | ATA | GAT | GAG | TCA | TCA | GAA | ATC | TCA | AAT | ATC | ACA | CTT | 393 |
| Phe | Ala | Leu | Gln | Ile | Asp | Glu | Ser | Ser | Glu | Ile | Ser | Asn | Ile | Thr | Leu | |
| | 40 | | | | | 45 | | | | | 50 | | | | | |
| CTT | TTG | TGC | TAT | ATT | CGT | TTC | ATT | GAT | TAT | GAT | | | | | | 426 |
| Leu | Leu | Cys | Tyr | Ile | Arg | Phe | Ile | Asp | Tyr | Asp | | | | | | |
| | 55 | | | | 60 | | | | | 65 | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 111:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 95 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 15..83
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq VMWLVALLEMCVC/KK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 111:

| | | | | | | | | | | | | | | | |
|------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| ATTGAAAAAT | AAAA | ATG | CAC | TCT | AGT | ATA | AAA | ACG | AAG | GGA | AGC | GTC | ATG | | 50 |
| | | Met | His | Ser | Ser | Ile | Lys | Thr | Lys | Gly | Ser | Val | Met | | |
| | | | | | | -20 | | | | | | -15 | | | |
| TGG | CTT | GTT | GCT | CTT | TTG | GAG | ATG | TGT | GTG | TGT | AAG | AAG | TCC | AGG | 95 |
| Trp | Leu | Val | Ala | Leu | Leu | Glu | Met | Cys | Val | Cys | Lys | Lys | Ser | Arg | |
| | -10 | | | | | -5 | | | | | 1 | | | | |

(2) INFORMATION FOR SEQ ID NO: 112:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 473 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 342..395
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq LEAISSLSSFVLG/RM

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 112:

```

ACTGTTTATA GATATTTTGT TTCCCTGAGC AACAGAAAAT GCAGTGCTTA TTAACTTAG      60
CAGCAATGCC TTGTAAAAAT ATAAGCCTGC AGATGGCAAT GGCCTCTATT TTTCTTCCAC    120
AAGTTTCTTC CAATTCAGAG CCCGTGCCTT CCTTCAGCCA CAGAGCGCAC AACAGCATGG    180
ATGAGATTGA GTCAGCCCTC TTACATTGTT GGCCTACAGC TATGGAGCTA CCTTTGCAGA    240
GTTGTCCACT TTGGGGTTTG AGCATGGGAA GTAAATTCAG AGATGCAAGT ATCTGGGAGA    300
GGGCATGAAC TCGTGAGAAA GTCCTCATAT TCTGAGCTCC T ATG ACA GTT TTG CCT    356
                                   Met Thr Val Leu Pro
                                   -15

TTA GAA GCT ATC TCG TCT CTT AGC AGC TTT GTT TTG GGC AGA ATG AAT      404
Leu Glu Ala Ile Ser Ser Leu Ser Ser Phe Val Leu Gly Arg Met Asn
      -10                      -5                      1

AGC AGA GGG GCA GGA AAG ACC CAG AAT CTT GAT GCC AGC TCC YTG CTT      452
Ser Arg Gly Ala Gly Lys Thr Gln Asn Leu Asp Ala Ser Ser Leu Leu
      5                      10                      15

TTA CTC TGC TGC TTG ATA CTG                                          473
Leu Leu Cys Cys Leu Ile Leu
      20                      25

```

(2) INFORMATION FOR SEQ ID NO: 113:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 386 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 12..101
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq ILFCVGAVGACTL/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 113:

```

AATACACAGA A ATG GGG ACT GCG AGC AGA AGC AAC ATC GCT CGC CAT CTG      50
      Met Gly Thr Ala Ser Arg Ser Asn Ile Ala Arg His Leu
      -30                      -25                      -20

CAA ACC AAT CTC ATT CTA TTT TGT GTC GGT GCT GTG GGC GCC TGT ACT      98
Gln Thr Asn Leu Ile Leu Phe Cys Val Gly Ala Val Gly Ala Cys Thr
      -15                      -10                      -5

CTC TCT GTC ACA CAA CCG TGG TAC CTA GAA GTG GAC TAC ACT CAT GAG      146
Leu Ser Val Thr Gln Pro Trp Tyr Leu Glu Val Asp Tyr Thr His Glu
      1                      5                      10                      15

GCC GTC ACC ATA AAG TGT ACC TTC TCC GCA ACC GGA TGC CCT TCT GAG      194
Ala Val Thr Ile Lys Cys Thr Phe Ser Ala Thr Gly Cys Pro Ser Glu
      20                      25                      30

CAA CCA ACA TGC CTG TGG TTT CGC TAC GGT GCT CAC CAG CCT GAG AAC      242
Gln Pro Thr Cys Leu Trp Phe Arg Tyr Gly Ala His Gln Pro Glu Asn
      35                      40                      45

CTG TGC TTG GAC GGG TGC AAA AGT GAG GCA GAS AAG TTC ACA GTG AGG      290
Leu Cys Leu Asp Gly Cys Lys Ser Glu Ala Xaa Lys Phe Thr Val Arg
      50                      55                      60

GAG GCC CTC AAA GAA AAC CAA GTT TCC CTC ACT GTA AAC AGA GTG ACT      338
Glu Ala Leu Lys Glu Asn Gln Val Ser Leu Thr Val Asn Arg Val Thr
      65                      70                      75

TCA AAT GAC AGT GCA ATT TAC ATC TGT GGA ATA GCA TTC CCC AGT GTA      386
Ser Asn Asp Ser Ala Ile Tyr Ile Cys Gly Ile Ala Phe Pro Ser Val
      80                      85                      90                      95

```

(2) INFORMATION FOR SEQ ID NO: 114:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 147 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 10..84
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq ALFYSVVVSTVSG/NE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 114:

```

AAGAGTCTG ATG AAT AGC AGT AAA GAA GAA ATG CGC GAA CTG GCA GCG TTG      51
      Met Asn Ser Ser Lys Glu Glu Met Arg Glu Leu Ala Ala Leu

```


(2) INFORMATION FOR SEQ ID NO: 116:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 141 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 1..87
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.7
seq LCYLSIFCLGVLF/II

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 116:

| | |
|---|-----|
| ATG CCT TGT ATA TCT CTC TTA GGT CTA CTT TAT AAT TTT GTT CAA GTC | 48 |
| Met Pro Cys Ile Ser Leu Leu Gly Leu Leu Tyr Asn Phe Val Gln Val | |
| -25 -20 -15 | |
| CTC TGT TAC TTA TCG ATC TTC TGT CTA GGT GTT CTG TTC ATT ATT GAA | 96 |
| Leu Cys Tyr Leu Ser Ile Phe Cys Leu Gly Val Leu Phe Ile Ile Glu | |
| -10 -5 1 | |
| CGT GGT TCA TTA AAA GTC TCC AAA TTA ATC TGT AGG CCA CCA GGG | 141 |
| Arg Gly Ser Leu Lys Val Ser Lys Leu Ile Cys Arg Pro Pro Gly | |
| 5 10 15 | |

(2) INFORMATION FOR SEQ ID NO: 117:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 307 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 167..211
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.7
seq IAVLFCFFLLIIF/QT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 117:

| | | | | |
|---|-----|-----|-----|-----|
| -30 | -25 | -20 | -15 | |
| GTT TCC ACG TGG AGC AGT GCC TCT CTG CGT GGT TCC TGG CAG CAG GGG | 387 | | | |
| Val Ser Thr Trp Ser Ser Ala Ser Leu Arg Gly Ser Trp Gln Gln Gly | | | | |
| | -10 | -5 | 1 | |
| ATG CCA GGC | | | | 396 |
| Met Pro Gly | | | | |
| | 5 | | | |

(2) INFORMATION FOR SEQ ID NO: 119:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 193 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 143..187
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq FLYLKSVFDVSLG/AR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 119:

| | |
|---|-----|
| ATGGAGATCC ATAACATGAT CCTACATGAA TGTTTCAATA TTGTATTCCT GTAAGTTACT | 60 |
| TTTACATTGA CAGTTCTGAA ATTCATGTTG AGTGTTAATT AGGCAGGAAA TCAGAAGGGA | 120 |
| GGTTTTGTAG AAGGTCGTAT CC ATG GGT TTT TTA TAT TTG AAA AGT GTT TTC | 172 |
| Met Gly Phe Leu Tyr Leu Lys Ser Val Phe | |
| -15 -10 | |
| GAT GTA TCA TTG GGG GCA AGG | 193 |
| Asp Val Ser Leu Gly Ala Arg | |
| -5 1 | |

(2) INFORMATION FOR SEQ ID NO: 120:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 460 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 254..436
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.6
seq LLLHGGGHSALS/WA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 120:

```

AAGTTTACGG AGCCGGTGGG CGGTAGGCGG TGCTACGGGT AGCTGGGTGC TGTCCAAAGG      60
CGACAGGGCG TCGTTAGGGG AGCGAGTCGT GACCGGTTGG GCCACACTCA ACGTGGGACG      120
AAGCTTCGCC TACTGTTTGA CTACGTGCGT GCAGCCTCCC CTCGATGTCG GCCCTCGAAA      180
AGAGCATGCA CCTCGGCCGC CTTCCTCTC GCCACCTCT ACCCGGCAGC GGGGGCAGTC      240
AGAGCGGASC AAG ATG CGA ATG GGC CCT GGA AGA AAG CGG GAC TTT TCC      289
          Met Arg Met Gly Pro Gly Arg Lys Arg Asp Phe Ser
          -60                      -55                      -50

CCT GTT CCT TGG AGT CAG TAT TTT GAG TCC ATG GAA GAT GTA GAA GTA      337
Pro Val Pro Trp Ser Gln Tyr Phe Glu Ser Met Glu Asp Val Glu Val
          -45                      -40                      -35

GAG AAT GAA ACT GGC AAG GAT ACT TTT CGA GTC TAC AAG AGT GGT TCA      385
Glu Asn Glu Thr Gly Lys Asp Thr Phe Arg Val Tyr Lys Ser Gly Ser
          -30                      -25                      -20

GAG GGT CCA GTC CTG CTC CTT CTG CAT GGA GGA GGT CAT TCT GCC CTT      433
Glu Gly Pro Val Leu Leu Leu Leu His Gly Gly Gly His Ser Ala Leu
          -15                      -10                      -5

TCT TGG GCT GTG TTC ACG GCA GCT ARG      460
Ser Trp Ala Val Phe Thr Ala Ala Xaa
      1                      5

```

(2) INFORMATION FOR SEQ ID NO: 121:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 275 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 207..245
(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.6
seq MIFLLYLLPSSEE/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 121:

```

AAACAGACAG GTATGGAGTC TGGGTGGGGC CACGTGTACC CTCCATCCT TAGAAAGAGT   60
GTGACACCAA GGGACAGATG CTGGCGTASG CGGGTTTTGT TTTGGAGGGT TTTTGTGTTG  120
TTTTTACAAA AATTAAGATA TTTCTGAGTT TATTATGAGG CTTTGTGTTT TACAATCATA  180
CTAAAAGATA ATGTTTCCTC TATAAA ATG ATT TTC CTT CTG TAC CTC TTG CCT   233
                Met Ile Phe Leu Leu Tyr Leu Leu Pro
                        -10                               -5

TCT TCT GAA GAA AGG AGA AAA TTG CTT TTT AGT CCC CAC AGG           275
Ser Ser Glu Glu Arg Arg Lys Leu Leu Phe Ser Pro His Arg
                1                               5                               10

```

(2) INFORMATION FOR SEQ ID NO: 122:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 236..418
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq LLLLHGGGHSALS/WA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 122:

```

GCGGTAGGCG GGTGCTACGG GTAGCTGGGT GCTGTCCAAA GGCGACAGGG CGTCGTTAGG   60
GGAGCGAGTC GTGACCGGTT GGGCCACACT CAACGTGGGA CGAAGCTTCG CCTACTGTTT  120
GACTACGTGC GTGCAGCCTC CCCTCGATGT CGGCCCTCGA AAAGAGCATG CACCTCGGCC   180
GCCTTCCCTC TCGCCACCT CTACCCGGCA GCGGGGGCAG TCAGAGCGGA SCAAG ATG   238
                Met

CGA ATG GGC CCT GGA AGA AAG CGG GAC TTT TCC CCT GTT CCT TGG AGT   286
Arg Met Gly Pro Gly Arg Lys Arg Asp Phe Ser Pro Val Pro Trp Ser
-60                -55                -50                -45

CAG TAT TTT GAG TCC ATG GAA GAT GTA GAA GTA GAG AAT GAA ACT GGC   334
Gln Tyr Phe Glu Ser Met Glu Asp Val Glu Val Glu Asn Glu Thr Gly

```

| | | | | | | |
|---|-----|--|-----|--|-----|-----|
| | -40 | | -35 | | -30 | |
| AAG GAT ACT TTT CGA GTC TAC AAG AGT GGT TCA GAG GGT CCA GTC CTG | | | | | | 382 |
| Lys Asp Thr Phe Arg Val Tyr Lys Ser Gly Ser Glu Gly Pro Val Leu | | | | | | |
| | -25 | | -20 | | -15 | |
| CTC CTT CTG CAT GGA GGA GGT CAT TCT GCC CTT TCT TGG GCT GTG TTC | | | | | | 430 |
| Leu Leu Leu His Gly Gly Gly His Ser Ala Leu Ser Trp Ala Val Phe | | | | | | |
| | -10 | | -5 | | 1 | |
| ACG GCA GCG ACA TGG | | | | | | 445 |
| Thr Ala Ala Thr Trp | | | | | | |
| 5 | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 123:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 138 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 49..96
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq LLNLISILASIPS/QF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 123:

| | |
|--|-------------|
| ATATACTGAA TTAAGTGTCT CTTGGTAATA CAGGCTCTTA TCAAACCC ATG CTG AGC | 57 |
| | Met Leu Ser |
| | -15 |
| CTA TTA AAT CTC ATT TCA ATC TTA GCA AGT ATT CCC AGT CAA TTT AAA | 105 |
| Leu Leu Asn Leu Ile Ser Ile Leu Ala Ser Ile Pro Ser Gln Phe Lys | |
| | -10 |
| | -5 |
| | 1 |
| CCA CAG TTT AGC AAG CTG CCA CTC TCA GGC CGG | 138 |
| Pro Gln Phe Ser Lys Leu Pro Leu Ser Gly Arg | |
| 5 | 10 |

(2) INFORMATION FOR SEQ ID NO: 124:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 94 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 11..85

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.5

seq LMLLWPVHPLLVG/HR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 124:

```
AAGATTCATC ATG GGC ACC ACC TCC AAC ATG GTC ACC ACC ATC CAT CTC      49
Met Gly Thr Thr Ser Asn Met Val Thr Thr Ile His Leu
-25                      -20                      -15
```

```
ATG TTG CTG TGG CCA GTG CAT CCA TTA CTG GTG GGC CAC CGC GGG      94
Met Leu Leu Trp Pro Val His Pro Leu Leu Val Gly His Arg Gly
-10                      -5                      1
```

(2) INFORMATION FOR SEQ ID NO: 125:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 481 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 41..343

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.4

seq ISHILAFFAASDG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 125:

```
AAGTTCCTC AGCGCCCGTA GCTTCGCGCG AGTCTGCGCG ATG GGC GAC CCG GAA      55
Met Gly Asp Pro Glu
-100
```

```
AGG CCG GAA GCG GCC GGG CTG GAT CAG GAT GAG AGA TCA TCT TCA GAC      103
Arg Pro Glu Ala Ala Gly Leu Asp Gln Asp Glu Arg Ser Ser Ser Asp
-95                      -90                      -85
```

```
ACC AAC GAA AGT GAA ATA AAG TCA AAT GAA GAG CCA CTC CTA AGA AAG      151
Thr Asn Glu Ser Glu Ile Lys Ser Asn Glu Glu Pro Leu Leu Arg Lys
```

| -80 | -75 | -70 | -65 | |
|---|-----|-----|-----|-----|
| AGT TCT CGC CGG TTT GTC ATC TTT CCA ATC CAG TAC CCT GAT ATT TGG | | | | 199 |
| Ser Ser Arg Arg Phe Val Ile Phe Pro Ile Gln Tyr Pro Asp Ile Trp | -60 | -55 | -50 | |
| AAA ATG TAT AAA CAG GCA CAG GCT TCC TTC TGG ACA GCA GAA GAG GTC | | | | 247 |
| Lys Met Tyr Lys Gln Ala Gln Ala Ser Phe Trp Thr Ala Glu Glu Val | -45 | -40 | -35 | |
| GAC TTA TCA AAG GAT CTC CCT CAC TGG AAC AAG CTT AAA GCA GAT GAG | | | | 295 |
| Asp Leu Ser Lys Asp Leu Pro His Trp Asn Lys Leu Lys Ala Asp Glu | -30 | -25 | -20 | |
| AAG TAC TTC ATC TCT CAC ATC TTA GCC TTT TTT GCA GCC AGT GAT GGA | | | | 343 |
| Lys Tyr Phe Ile Ser His Ile Leu Ala Phe Phe Ala Ala Ser Asp Gly | -15 | -10 | -5 | |
| ATT GTA AAT GAA AAT TTG GTG GAG CGC TTT AGT CAG GAG GTG CAG GTT | | | | 391 |
| Ile Val Asn Glu Asn Leu Val Glu Arg Phe Ser Gln Glu Val Gln Val | 1 | 5 | 10 | 15 |
| CCA GAG GCT CGC TGT TTC TAT GGC TTT CAA ATT CTC ATC GAG AAT GTT | | | | 439 |
| Pro Glu Ala Arg Cys Phe Tyr Gly Phe Gln Ile Leu Ile Glu Asn Val | 20 | 25 | 30 | |
| CAC TCA GAG ATG TAC AGT TTG CTG ATA GAC ACT TAC ATC AGA | | | | 481 |
| His Ser Glu Met Tyr Ser Leu Leu Ile Asp Thr Tyr Ile Arg | 35 | 40 | 45 | |

(2) INFORMATION FOR SEQ ID NO: 126:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 197 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 3..50
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq GLFSLLPHPPCVG/RV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 126:

| | |
|---|----|
| AG ATG GAT GCA GGC TTA TTT TCT CTG CTT CCC CAT CCT CCA TGT GTT | 47 |
| Met Asp Ala Gly Leu Phe Ser Leu Leu Pro His Pro Pro Cys Val | |
| -15 -10 -5 | |
| GGC AGG GTG CTG CCA CAG TCT AGG TAT CAT CTG CAT CCA AGA TCA CCT | 95 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Arg | Val | Leu | Pro | Gln | Ser | Arg | Tyr | His | Leu | His | Pro | Arg | Ser | Pro | |
| 1 | | | | | 5 | | | | | 10 | | | | | 15 | |
| TTG | GTA | GAA | GAT | ACC | TGT | TTC | TTC | CAG | AGG | CTT | AAA | AAA | ATT | TTA | AAT | 143 |
| Leu | Val | Glu | Asp | Thr | Cys | Phe | Phe | Gln | Arg | Leu | Lys | Lys | Ile | Leu | Asn | |
| | | | | 20 | | | | | 25 | | | | | 30 | | |
| AAA | ATA | GGA | AAC | CTT | TTC | CAT | TCA | ACA | AAG | TCC | CTT | TGT | GTC | TCA | CTT | 191 |
| Lys | Ile | Gly | Asn | Leu | Phe | His | Ser | Thr | Lys | Ser | Leu | Cys | Val | Ser | Leu | |
| | | | 35 | | | | | 40 | | | | | 45 | | | |
| GCC | CCG | | | | | | | | | | | | | | | 197 |
| Ala | Pro | | | | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 127:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 121 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 65..106
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq LITLTYLIQGESA/RT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 127:

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ATTTAATAAC | TTAAAAATTG | GCCAATTTTA | TTTTTAGAAA | AGCTCTGCAT | CATCCTGTGT | 60 | | | | | | | | | | |
| TTAG | ATG | TTA | ATT | ACG | CTG | ACT | TAC | CTA | ATC | CAG | GGT | GAG | TCA | GCA | CGA | 109 |
| | Met | Leu | Ile | Thr | Leu | Thr | Tyr | Leu | Ile | Gln | Gly | Glu | Ser | Ala | Arg | |
| | | | | -10 | | | | | -5 | | | | | | 1 | |
| ACC | ACG | TTC | GAG | | | | | | | | | | | | | 121 |
| Thr | Thr | Phe | Glu | | | | | | | | | | | | | |
| | | | 5 | | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 128:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 238 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 146..223
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq RVQCLCAIPFAFS/LT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 128:

```

AAAATATGTC TTCAGCTCTA ATCCATTATC ACTCAGATCA TTCTAACCTT TTCCCCTTGC      60
TTATCTATAA CTTTCCACTT CAACAGTGAG AAACCTGGCT TCCATATCTG TCATCCATAA    120
ATGTACGTAT TTAATTCCAG TACAC  ATG TAT ACT GGT TTC AGA ATA GAA GCA      172
                        Met Tyr Thr Gly Phe Arg Ile Glu Ala
                        -25                               -20
ACT TTA TTA ACT AGA GTG CAG TGC TTA TGT GCA ATT CCT TTT GCC TTT      220
Thr Leu Leu Thr Arg Val Gln Cys Leu Cys Ala Ile Pro Phe Ala Phe
      -15                -10                -5
AGT CTT ACA GGC ATC CGG                                          238
Ser Leu Thr Gly Ile Arg
      1                5

```

(2) INFORMATION FOR SEQ ID NO: 129:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 252..392
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq ISHILAFFAASDG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 129:

```

AAGCGGACCA CCTGGGTGCT GTCGTAGTTG GAGGTGGCCT GAGGAGCTCA GTTCCCTCAG      60
CGCCCGTAGT TTCGGCGGAG TCTGCGCGAT GGGCGACCCG GAAAGGCCGG GAAGCGGCCG    120

```

GGCTGGATCA GGATGAGAGA TCATCTTCAG ACACCAACGA AAGTGAAATA AAGTCAAATG 180
 AAGAGCCRST CCTAAGAAAG AGTTCTCGCC GGTTCGTCAT CTTTCCAATC CAGTACCCTG 240
 ATATTTGGAA A ATG TAT AAA CAG GCA CAG GCT TCC TTC TGG ACA GCA GAA 290
 Met Tyr Lys Gln Ala Gln Ala Ser Phe Trp Thr Ala Glu
 -45 -40 -35
 GAG GTC GAC TTA TCA AAG GAT CTC CCT CAC TGG AAC AAG CTT AAA GCA 338
 Glu Val Asp Leu Ser Lys Asp Leu Pro His Trp Asn Lys Leu Lys Ala
 -30 -25 -20
 GAT GAG AAG TAC TTC ATC TCT CAC ATC TTA GCC TTT TTT GCA GCC AGT 386
 Asp Glu Lys Tyr Phe Ile Ser His Ile Leu Ala Phe Phe Ala Ala Ser
 -15 -10 -5
 GAT GGA ATT GTA AAT GAA AAT TTG GTG GAG CGC 419
 Asp Gly Ile Val Asn Glu Asn Leu Val Glu Arg
 1 5

(2) INFORMATION FOR SEQ ID NO: 130:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 255 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 112..195
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3
seq FLGLAAMASPSRN/SQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 130:

AATTACGATG TKKTGTGTGC TTGTGCAAAT ACAGGACGGT TCCTGAAATG TGTCTCTGAG 60
 CGTTCTTAAC TGTGTGTRAG GAATTSMTGC GCGTACACGT GGTGGGTCAT T ATG CTG 117
 Met Leu
 CTG CAC CTG TGT AGT GTG AAG AAT CTG TAC CAG AAC AGG TTT TTA GGC 165
 Leu His Leu Cys Ser Val Lys Asn Leu Tyr Gln Asn Arg Phe Leu Gly
 -25 -20 -15
 CTG GCC GCC ATG GCG TCT CCT TCT AGA AAC TCC CAG AGC CGA CGC CGG 213
 Leu Ala Ala Met Ala Ser Pro Ser Arg Asn Ser Gln Ser Arg Arg Arg
 -10 -5 1 5
 TGC AAG GAG CCG CTC CGA TAC AGC TAC AAC CCC GAC CAG GGG 255
 Cys Lys Glu Pro Leu Arg Tyr Ser Tyr Asn Pro Asp Gln Gly

10

15

20

(2) INFORMATION FOR SEQ ID NO: 131:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 287 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 123..176
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3
seq WTCLKSFPSPTSS/HA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 131:

```

AAGAGCATCC TCGCCCCCGG CGCGGGGCCC TCGGGTAGCC TCAGGCCCT CCCCTGGACC   60
CGCCGCAGAG CCASTGCAGA ATACAGAAAC TGCAGCCATG ACCACGCACG TCACCCTGGA   120
AG ATG CCC TGT CCA ACG TGG ACC TGC TTG AAG AGC TTC CCC TCC CCG   167
  Met Pro Cys Pro Thr Trp Thr Cys Leu Lys Ser Phe Pro Ser Pro
      -15                      -10                      -5

ACC AGC AGC CAT GCA TCG AGC CTC CAC CTT CCT CCA TCA TGT ACC AGG   215
Thr Ser Ser His Ala Ser Ser Leu His Leu Pro Pro Ser Cys Thr Arg
      1                      5                      10

CTA ACT TTG ACA CAA ACT TTG AGG ACA GGA ATG CAT TTG TCA CGG GCA   263
Leu Thr Leu Thr Gln Thr Leu Arg Thr Gly Met His Leu Ser Arg Ala
      15                      20                      25

TTG CAA GGT ACA TTG ACC AGG CAG   287
Leu Gln Gly Thr Leu Thr Arg Gln
      30                      35

```

(2) INFORMATION FOR SEQ ID NO: 132:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 224 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 6..104
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.3
seq LLGWGLNLTGQG/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 132:

```
AAAGG ATG GAG GAT CTC TTT AGC CCC TCA ATT AWG CCG CCG GCG CCC AAC    50
Met Glu Asp Leu Phe Ser Pro Ser Ile Xaa Pro Pro Ala Pro Asn
      -30                      -25                      -20

ATT TCC GTG CCC ATC TTG CTG GGC TGG GGT CTC AAC CTG ACC TTG GGG    98
Ile Ser Val Pro Ile Leu Leu Gly Trp Gly Leu Asn Leu Thr Leu Gly
      -15                      -10                      -5

CAA GGA GCC CCT GCC TCT GGG CCG CCC AGC CGC CGC GTC CGC CTG GTG    146
Gln Gly Ala Pro Ala Ser Gly Pro Pro Ser Arg Arg Val Arg Leu Val
      1                      5                      10

TTC CTG GGG GTC ATC CTG GTG GTG GCG GTG GCA KGC AAC ACC ACA GTG    194
Phe Leu Gly Val Ile Leu Val Val Ala Val Ala Xaa Asn Thr Thr Val
      15                      20                      25                      30

CTG TGC CGC CTG TGC GGC GGC GGC GGC CCG    224
Leu Cys Arg Leu Cys Gly Gly Gly Gly Pro
      35                      40
```

(2) INFORMATION FOR SEQ ID NO: 133:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 347 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 183..338
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.1
seq VMLETGGLLVSLG/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 133:

```
AGGGACTTCC GGCCTCGCTG GCGTGGACGT TTGTGGTGGG GCGTGTTGGT CCGCGCTCTC    60
```

AGAACTGTGC TGGGAAGGAT GGTAGGGCGA CTGGGGCTCA CCTCCGCACC GTTGTAGGAC 120
CCGGGGTAGG GTTTTGAGCC CGTGGGAGCK GCCCCACGCG GCCTCGTCCT GCCAACGGTC 180
GG ATG GCG GAG ACG AAG GAC GCA GCG CAG ATG TTG GTG ACC TTC AAG 227
Met Ala Glu Thr Lys Asp Ala Ala Gln Met Leu Val Thr Phe Lys
-50 -45 -40
GAT GTG GCT GTG ACC TTT ACC CGG GAG GAG TGG AGA CAG CTG GAC CTG 275
Asp Val Ala Val Thr Phe Thr Arg Glu Glu Trp Arg Gln Leu Asp Leu
-35 -30 -25
GCC CAG AGG ACC CTG TAC CGA GAG GTG ATG CTG GAG ACC TGT GGG CTT 323
Ala Gln Arg Thr Leu Tyr Arg Glu Val Met Leu Glu Thr Cys Gly Leu
-20 -15 -10
CTG GTT TCA CTA GGG CAT CCT CGG 347
Leu Val Ser Leu Gly His Pro Arg
-5 1

(2) INFORMATION FOR SEQ ID NO: 134:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 432 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 298..336
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq MLILSQNIAQLEA/QV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 134:

AATTGARRTG TTTGATAACT GTCACCTTAG GGTTCACACC AAAACCTTGA CTTTATCATC 60
TTGTTATACA TTTTTCAAAA TGAGGTTAGA GATCAGGGGA ATGAATAGGA GAGAAGTACA 120
TATTTTCAGTT CACTGGGCAT AGGTGAATAG AGGAAGGAGA AAATGAACAT ACCCAATCCA 180
CAGAGAAATG GCTCACAGAG CCCAGTGACT ATGCTGAGAC GCTATTAATT CAAGAAAGTT 240
TTAGTATTTG ATTTGTCAAA TGACATTATT GTTTAGGACT TTTATTTTCC CTTACAG 297
ATG TTG ATC TTT TCT CAG AAT ATT GCC CAA CTG GAG GCC CAG GTG GAA 345
Met Leu Ile Leu Ser Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu
-10 -5 1
AAG GTT ACA AAG GAA AAG ATT TCA GCT ATT AAT CAA CTG GAG GAA AAT 393

Lys Val Thr Lys Glu Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Asn
 5 10 15

TCA AAG CCA GCT GGC TTC TCG GGA AAA TGG ATG TCA CAA 432
 Ser Lys Pro Ala Gly Phe Ser Gly Lys Trp Met Ser Gln
 20 25 30

(2) INFORMATION FOR SEQ ID NO: 135:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 380 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 90..152
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq GLWAHSWTCSCSA/AX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 135:

AATTCACTTC ACCTGGAGTT GAGCCAAGAT TCTCTTTACT CCAAAGCCAG CACTCCTTCT 60
 GAGAACAGGA CTGTGATTG GATGGACGG ATG TTG CTG GGG GCC TCA GCA CAG 113
 Met Leu Leu Gly Ala Ser Ala Gln
 -20 -15
 GGT CTT TGG GCT CAC AGC TGG ACA TGC AGC TGT TCA GCG GCA STG CGG 161
 Gly Leu Trp Ala His Ser Trp Thr Cys Ser Cys Ser Ala Ala Xaa Arg
 -10 -5 1
 TCT GTC CAC CCA GGC GGA GAC TGG ATG CAA CAG TTT CAG GCG GGG TTC 209
 Ser Val His Pro Gly Gly Asp Trp Met Gln Gln Phe Gln Ala Gly Phe
 5 10 15
 CTC CCT CCC CAG GTG CCT GCC CAC CTC TCC CTT ACA TGG GAT GTC TCT 257
 Leu Pro Pro Gln Val Pro Ala His Leu Ser Leu Thr Trp Asp Val Ser
 20 25 30 35
 CTT CTT CCT CCT TGC CTG GTC CCT AAA GCA CTT GAG TTT GTG GTT CAT 305
 Leu Leu Pro Pro Cys Leu Val Pro Lys Ala Leu Glu Phe Val Val His
 40 45 50
 TTT TTA AAA AAT GAT ATA TTT TAT TTA ACC CAG TAT ATT AAA AAT GTC 353
 Phe Leu Lys Asn Asp Ile Phe Tyr Leu Thr Gln Tyr Ile Lys Asn Val
 55 60 65
 ATT TCA GAA TGT ACG TTT TCC TTT TTT 380
 Ile Ser Glu Cys Thr Phe Ser Phe Phe

70

75

(2) INFORMATION FOR SEQ ID NO: 136:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 212 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 9..53
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq APLELSCWGGGWG/LP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 136:

```

AGCGCAAG ATG GCG GCC CCC TTG GAA CTC AGT TGC TGG GGA GGC GGC TGG      50
Met Ala Ala Pro Leu Glu Leu Ser Cys Trp Gly Gly Gly Trp
-15                      -10                      -5

GGA CTC CCA TCG GTT CAC AGC GAG TCC CTG GTG GTG ATG GCT TAT GCC      98
Gly Leu Pro Ser Val His Ser Glu Ser Leu Val Val Met Ala Tyr Ala
1                      5                      10                      15

AAA TTT TCT GGT GCA CCC TTG AAA GTC AAT GTG ATA GAT AAC ACC TGG     146
Lys Phe Ser Gly Ala Pro Leu Lys Val Asn Val Ile Asp Asn Thr Trp
20                      25                      30

AGA GGT TCA AGA GGC GAT GTA CCA ATT TTG ACA ACT GAA GAC GAC ATG     194
Arg Gly Ser Arg Gly Asp Val Pro Ile Leu Thr Thr Glu Asp Asp Met
35                      40                      45

GTT TCT CAG CCA GCA AGG                                           212
Val Ser Gln Pro Ala Arg
50

```

(2) INFORMATION FOR SEQ ID NO: 137:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 432 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 226..285
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.1
seq LGFLNCYIAVARS/GG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 137:

```

AAGGGAMNSA CCCAGGCTGC GGGACSGGTG CAGGCTGCGG CGCTGACGGC CTCTGCTCCT    60
TCCGCGGGTT TCCGACTCCC TGCCCTAGAT TTTCTGCTTA GCGACTTGGG GTCCCCCTCTC   120
GTTTGCTTCT GGTAGGAGTC GCAATCCCAK BAGCAATAGC CCAGAAGAGG ACACGGTTCC   180
CGTACCGAAG GTTCAGTACC AGCAGCCCGA CCATCACGCG GCGGG ATG TCT GDR GTT   237
                                         Met Ser Xaa Val
                                         -20

GGC ATT GAC CTC GGC TTT CTC AAC TGC TAC ATT GCT GTC GCG AGA AGT   285
Gly Ile Asp Leu Gly Phe Leu Asn Cys Tyr Ile Ala Val Ala Arg Ser
   -15                               -10                               -5

GGC GGC ATC GAG ACC ATC GCC AAT GAG TAC AGC GAC AGG TGT ACC CCG   333
Gly Gly Ile Glu Thr Ile Ala Asn Glu Tyr Ser Asp Arg Cys Thr Pro
   1                               5                               10                               15

GCC TGT ATA TCA TTG GGA TCA AGA ACT CGA GCC ATT GGA AAT GCA GCA   381
Ala Cys Ile Ser Leu Gly Ser Arg Thr Arg Ala Ile Gly Asn Ala Ala
           20                               25                               30

AAG AGC CAG ATA GTC ACG AAC GTA AGA AAT ACA ATT CAT GGC TTC AAA   429
Lys Ser Gln Ile Val Thr Asn Val Arg Asn Thr Ile His Gly Phe Lys
           35                               40                               45

AAG                                         432
Lys

```

(2) INFORMATION FOR SEQ ID NO: 138:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 229 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 101..157

(C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.1
 seq FVVFSTMTASSP/GE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 138:

```

AGATGAATAT TTGATACCCA CAGTAGAACT TCTTTMMGAA CTTCTTTCAC AATWGGAGTT    60
AATCTTCTAA AGCCCCGCCA CTGCTTCATC AACTAAGTTT ATG GAA TAT TCT AAA    115
                                     Met Glu Tyr Ser Lys
                                     -15
TMM TTT GTT GTC TTT TCA ACA ATG TTC ACA GCA TCT TCA CCA GGA GAA    163
Xaa Phe Val Val Phe Ser Thr Met Phe Thr Ala Ser Ser Pro Gly Glu
          -10                      -5                      1
GAC TTT CCC CCC TTC TTT TCA CAG ATG TNS AGA TTG TCA AGA AAC TAC    211
Asp Phe Pro Pro Phe Phe Ser Gln Met Xaa Arg Leu Ser Arg Asn Tyr
          5                      10                      15
TTT CCT TGC CCA CCR WGG    229
Phe Pro Cys Pro Pro Xaa
          20
  
```

(2) INFORMATION FOR SEQ ID NO: 139:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 328 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 113..232
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq LPFRLPWASTATA/RC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 139:

```

AACACCCAGG CCCTGATGCA GCAGCAGGCG GCCCTGGTAG CGGCTCACAG TGCCTACCTC    60
AGCCCCATGG CCACCATGGC TGCCGTGCAG ATGCAGCACA TGGCTGCCAT CA ATG CCA    118
                                     Met Pro
                                     -40
ATG GCC TCA TCG CCA CCC CCA TCA CCC CAT CCT CAG GAA CCA GCA CCC    166
Met Ala Ser Ser Pro Pro Pro Ser Pro His Pro Gln Glu Pro Ala Pro
          -35                      -30                      -25
  
```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CTC | CTG | CCA | TCG | CTG | CCA | CGC | CTG | TCT | CTG | CCA | TTC | CGG | CTG | CCC | TGG | 214 |
| Leu | Leu | Pro | Ser | Leu | Pro | Arg | Leu | Ser | Leu | Pro | Phe | Arg | Leu | Pro | Trp | |
| | | -20 | | | | | -15 | | | | | -10 | | | | |
| | | | | | | | | | | | | | | | | |
| GCG | TCA | ACG | GCT | ACA | GCC | CGG | TGC | CCA | CCC | AGC | CCA | CTG | GGC | AGC | CTG | 262 |
| Ala | Ser | Thr | Ala | Thr | Ala | Arg | Cys | Pro | Pro | Ser | Pro | Leu | Gly | Ser | Leu | |
| | -5 | | | | | 1 | | | | 5 | | | | | 10 | |
| | | | | | | | | | | | | | | | | |
| CNC | CTG | ATG | CTC | TGT | ATC | CCA | ACG | GGG | TTC | ACC | CCT | ACC | CAG | CCC | AGA | 310 |
| Xaa | Leu | Met | Leu | Cys | Ile | Pro | Thr | Gly | Phe | Thr | Pro | Thr | Gln | Pro | Arg | |
| | | | | 15 | | | | | 20 | | | | | 25 | | |
| | | | | | | | | | | | | | | | | |
| GCC | CCG | CGG | CCC | CCT | GGG | | | | | | | | | | | 328 |
| Ala | Pro | Arg | Pro | Pro | Gly | | | | | | | | | | | |
| | | | | 30 | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 140:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 217 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 53..166
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4
seq WALGLKFLSSSSQ/NF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 140:

| | | | | | | | | |
|------------|-----------|------------|------------|------------|-----|-----|-----|-----|
| AACAGGAGAC | TTGGAAGGA | CCAATGGTAA | TTTAAGTGGC | TCTTAAAAAG | TC | ATG | CAA | 58 |
| | | | | | | Met | Gln | |
| | | | | | | | | |
| CAT | GTW | WCT | GGA | CAC | GWG | CCT | GAT | 106 |
| His | Val | Xaa | Gly | His | Xaa | Pro | Asp | |
| | -35 | | | | | -30 | | |
| | | | | | | | -25 | |
| | | | | | | | | |
| CCT | CCC | TGT | GGG | CAC | ACC | ACC | TGG | 154 |
| Pro | Pro | Cys | Gly | His | Thr | Thr | Trp | |
| | -20 | | | | -15 | | | |
| | | | | | | | -10 | |
| | | | | | | | | -5 |
| | | | | | | | | |
| TCT | TCC | TCT | CAA | AAT | TTC | TGT | GCA | 202 |
| Ser | Ser | Ser | Gln | Asn | Phe | Cys | Ala | |
| | | | | 1 | | | 5 | |
| | | | | | | | | 10 |
| | | | | | | | | |
| ACA | GGA | GGC | CAA | CGG | | | | 217 |
| Thr | Gly | Gly | Gln | Arg | | | | |
| | | | | 15 | | | | |

(2) INFORMATION FOR SEQ ID NO: 141:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 202 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 44..133
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4
seq AGFLKCLLLSSLQ/SY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 141:

| | |
|--|-----|
| ATAATAGTGT TATTTTCAGTG CATGATTTTT GCCTTTGAGA GAC ATG GGT TGG GAA | 55 |
| Met Gly Trp Glu | |
| -30 | |
| ATG ACA TGT ATT AAG TCT TTT TTC TGG GCC AGG TCT CAT GCT GGG TTC | 103 |
| Met Thr Cys Ile Lys Ser Phe Phe Trp Ala Arg Ser His Ala Gly Phe | |
| -25 -20 -15 | |
| TTG AAA TGC CTC CTG TTG TCT TCA TTA CAG TCC TAC AAG GAG GCT GCT | 151 |
| Leu Lys Cys Leu Leu Leu Ser Ser Leu Gln Ser Tyr Lys Glu Ala Ala | |
| -10 -5 1 5 | |
| GTT ATC TTC CCT CTT ACT GAT TTG CTC AAA CTG AAA GAT TAT GGT GAA | 199 |
| Val Ile Phe Pro Leu Thr Asp Leu Leu Lys Leu Lys Asp Tyr Gly Glu | |
| 10 15 20 | |
| TGG | 202 |
| Trp | |

(2) INFORMATION FOR SEQ ID NO: 142:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 248..355
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4
seq VQLSFAATTPVLA/DK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 142:

```
AAGTTGGGAG AGGAGCTGCT GGTGAAGTG AAGGTGAGGA GCTCAGTGCT TCTTTCAGTG    60
CCCTATCTGC TGGGCTTTAC GCCCTGAGG GGCTGACTGT AAAAACTCT AAGCTGATCC    120
AGCCCCCAA ATTACCTTT GGTGAGCTGG AAAGTCCATC TATTTGGGAC GCGAATCATG    180
TCAGTGCGAC AACGCAAAAG GGTGAAAGC CTTCTACGAT GCAATAAAAT ACGGGCCTAA    240
CCACTTG ATG GTG TTT GGA GGC GTC TGT CCA TCC GTC ACA TCC ATC ATT    289
      Met Val Phe Gly Gly Val Cys Pro Ser Val Thr Ser Ile Ile
      -35                -30                -25

GCA GAG TCC CTC CAA GGC TGG AAT CTG GTG CAG CTT TCT TTT GCT GCA    337
Ala Glu Ser Leu Gln Gly Trp Asn Leu Val Gln Leu Ser Phe Ala Ala
      -20                -15                -10

ACC ACG CCT GTT CTA GCC GAT AAG                                361
Thr Thr Pro Val Leu Ala Asp Lys
      -5                1
```

(2) INFORMATION FOR SEQ ID NO: 143:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 216 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 145..192
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4
seq ITWSLLFLYQCSL/HF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 143:

```
ACACATTACC TCTTTTCATT TTAGACAGGT TAATTAGTGT GTATTTCAT AGTTGTCTTT    60
TACCTCAAGA AATAATCATT TCTTTAGGTA ATTATTTTAA TGGCTTGCCA TTTTGTATGA    120
TTGTTCTTGC AACATTTCT ATTT ATG CAT TTT ATA ACA TGG AGC TTA CTA    171
```

Met His Phe Ile Thr Trp Ser Leu Leu
 -15 -10

TTT TTA TAC CAG TGC TCG CTT CAT TTT ATC ATT ATC AAG GCC GGG 216
 Phe Leu Tyr Gln Cys Ser Leu His Phe Ile Ile Ile Lys Ala Gly
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 144:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 378 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 256..363
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq CWPSVASPSSWS/SP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 144:

AAAGTGGCCA GCGGACCATC TCTCGTGCCC TCGCTCTCTG CGCTCCGGGG CAGCTGAGCC 60
 CCGGCCACCC GCTCTCCAAG ATGAAGAAGC TCCAGGGAGC TCACCTCCGC AAGCCTGTCA 120
 CCCCAGACCT GCTGATGACC CCCAGTGACC AGGGCGATGT CGACCTGGAT GTGGACTTTG 180
 CTGCACACCG GGGGAAGTGG ACAGGCAAGC TGGACTTCCT GCTGTCCTGC ATTGGCTACT 240
 GTGTAGGCCT GGGGA ATG TCT GGC GCT TCC CCT ATC GAG CGT ACA CCA ATG 291
 Met Ser Gly Ala Ser Pro Ile Glu Arg Thr Pro Met
 -35 -30 -25
 GAG GAG GCG CCT TCC TCG TGC CCT ACT TCC TCA TGC TGG CCA TCT GTG 339
 Glu Glu Ala Pro Ser Ser Cys Pro Thr Ser Ser Cys Trp Pro Ser Val
 -20 -15 -10
 GCA TCC CCC TCT TCT TCC TGG AGC TCT CCC TGG GCC AGT 378
 Ala Ser Pro Ser Ser Ser Trp Ser Ser Pro Trp Ala Ser
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 145:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 321 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 172..282

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.9
seq PGPSLRLFSGSQA/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 145:

```

AAGGGTCTCC ATGACAACCG GCCTGGCCGG CTAGCAGTGC TCTGCTCACT TGGCTGCGAG    60
GAGCGCCACG AAAGGTCAGA GGAAGGAGCT GTGGGAAGCT CGCAGCAGGT ATCGGAGCTT   120
AAGCCAGTGG ATTTGGGGGC CCTGGGCTCC CTAGCCGGCT GCGGTGTGAG A ATG GAG    177
                               Met Glu
TGG GCA GGA AAG CAG CGG GAC TTT CAG GTA AGG GCA GCT CCG GGC TGG    225
Trp Ala Gly Lys Gln Arg Asp Phe Gln Val Arg Ala Ala Pro Gly Trp
-35                      -30                      -25                      -20
GAT CAT TTG GCC TCC TTT CCT GGC CCT TCT CTC CGG CTG TTT TCT GGG    273
Asp His Leu Ala Ser Phe Pro Gly Pro Ser Leu Arg Leu Phe Ser Gly
-15                      -10                      -5
AGT CAG GCG AGT GTC TGT AGT CTC TGC TCG GGG TTT GGG GCT CAG GAA    321
Ser Gln Ala Ser Val Cys Ser Leu Cys Ser Gly Phe Gly Ala Gln Glu
      1                      5                      10

```

(2) INFORMATION FOR SEQ ID NO: 146:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 278 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 78..257

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.9
seq AKVVSLSLQTSSA/HH

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 146:

```

AAGAACACAA AAAGCTACAG AAGGTCCAGG CTAAGTAAAA GCATCAAGAC CAAGCTGTTG      60
TAAGTCAAAC TGCTTTT ATG ATT GCA TTC TTT GAT GAA GAC AAT CCC AGA      110
          Met Ile Ala Phe Phe Asp Glu Asp Asn Pro Arg
          -60                      -55                      -50

AAA AGA AGG TCG TAT TCT TTT ACT CAA AGT GCG GGA ATC TTG TGT CAG      158
Lys Arg Arg Ser Tyr Ser Phe Thr Gln Ser Ala Gly Ile Leu Cys Gln
          -45                      -40                      -35

GAA ACT ACA TAT TCA ACA CCA CAT ACA AAA CTT GAG AAA GCA AAG TCT      206
Glu Thr Thr Tyr Ser Thr Pro His Thr Lys Leu Glu Lys Ala Lys Ser
          -30                      -25                      -20

CCA ACA GCA GAT GCC AAA GTG GTT TCT TTG TCT TTA CAG ACT AGC TCT      254
Pro Thr Ala Asp Ala Lys Val Val Ser Leu Ser Leu Gln Thr Ser Ser
          -15                      -10                      -5

GCG CAT CAC AGA GGG GGG MDT GGT      278
Ala His His Arg Gly Gly Xaa Gly
      1                      5

```

(2) INFORMATION FOR SEQ ID NO: 147:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 349 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 89..232
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq ALFCTLPCPVERG/QQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 147:

```

AAATTTTCTT AAATTAGCAG TCTAATGTGT TCTAAAGAGC AGCTCCACTC AGATCTCTTC      60
TTAAGGGTTG CATTTTCATCA CAGTATAA ATG GGC AAA TCC ATC AYT TCC CTC      112
          Met Gly Lys Ser Ile Xaa Ser Leu
          -45

TTC TCA GTG CKC TTG AAR GCG AGA TTG AAG GGM MAA TTA GAA GCT GTT      160
Cys Ser Val Xaa Leu Lys Ala Arg Leu Lys Gly Xaa Leu Glu Ala Val
-40                      -35                      -30                      -25

GAT TTG TGC TTG CGG GCT CAG AAG CGT CGC ACT GCT TTG TTT TGT ACT      208

```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Leu | Cys | Leu | Arg | Ala | Gln | Lys | Arg | Arg | Thr | Ala | Leu | Phe | Cys | Thr | |
| | | | | -20 | | | | | -15 | | | | | -10 | | |
| CTA | CCG | TGT | CCT | GTT | GAA | AGG | GGT | CAA | CAA | GTG | CCG | GGG | ANV | NNN | AHG | 256 |
| Leu | Pro | Cys | Pro | Val | Glu | Arg | Gly | Gln | Gln | Val | Pro | Gly | Xaa | Xaa | Xaa | |
| | | | -5 | | | | | 1 | | | | 5 | | | | |
| AGG | CTG | AGG | CTG | GCG | TCA | CCT | TCC | GTT | GCT | AAG | GTG | TTC | CAG | TGT | TTT | 304 |
| Arg | Leu | Arg | Leu | Ala | Ser | Pro | Ser | Val | Ala | Lys | Val | Phe | Gln | Cys | Phe | |
| | 10 | | | | | 15 | | | | | 20 | | | | | |
| CTC | TCA | AAA | CTC | TGT | GTT | TGG | AAC | ATC | AAG | GAT | GGA | TTA | TCC | CGG | | 349 |
| Leu | Ser | Lys | Leu | Cys | Val | Trp | Asn | Ile | Lys | Asp | Gly | Leu | Ser | Arg | | |
| 25 | | | | | 30 | | | | | 35 | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 149:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 143 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 75..116
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq LNILKTLTSAALP/SP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 149:

```
AATACACCTT AACTTTTACT ACTTTTATA AACGGTAGGA AAGGATATAC TGATGTTGTG      60
GGTATTACAA GGTA ATG CTG AAC ATT CTG AAG ACC TTA ACT TCT GCT GCT      110
           Met Leu Asn Ile Leu Lys Thr Leu Thr Ser Ala Ala
                           -10                      -5

CTT CCC TCC CCC TCC CCC CGC CCC AAC AAG AGG      143
Leu Pro Ser Pro Ser Pro Arg Pro Asn Lys Arg
      1                      5
```

(2) INFORMATION FOR SEQ ID NO: 150:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 176 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 24..143
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq SPLLCLYHPPVYT/ST

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 150:

| | | | | | | | | | | | | | | | | |
|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AGTAATCCCA | GGCGTTCGCC | CTC | ATG | CGG | GCC | AGG | GTT | TGG | CCT | CGC | TCC | CAC | | | | 53 |
| | | | Met | Arg | Ala | Arg | Val | Trp | Pro | Arg | Ser | His | | | | |
| | | | -40 | | | | | | -35 | | | | | | | |
| | | | | | | | | | | | | | | | | |
| GGG | ATC | CCT | GTG | CCT | TCC | TTT | CTC | TCT | AAG | AGC | AGC | CTC | AGT | CAT | ACA | 101 |
| Gly | Ile | Pro | Val | Pro | Ser | Phe | Leu | Ser | Lys | Ser | Ser | Leu | Ser | His | Thr | |
| -30 | | | | | -25 | | | | | -20 | | | | | -15 | |
| | | | | | | | | | | | | | | | | |
| CCA | TCA | CCT | CTC | CTC | TGT | CTA | TAC | CAT | CCT | CCT | GTC | TAC | ACC | AGC | ACC | 149 |
| Pro | Ser | Pro | Leu | Leu | Cys | Leu | Tyr | His | Pro | Pro | Val | Tyr | Thr | Ser | Thr | |
| | | | | -10 | | | | | -5 | | | | | 1 | | |
| | | | | | | | | | | | | | | | | |
| ACT | ACC | CCA | TCT | ATA | CCA | CCA | CGT | CTG | | | | | | | | 176 |
| Thr | Thr | Pro | Ser | Ile | Pro | Pro | Arg | Leu | | | | | | | | |
| | | 5 | | | | | 10 | | | | | | | | | |

(2) INFORMATION FOR SEO ID NO: 151:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 414 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 262..369
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.9
seq SLCLSLLLIPGPKP/LV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 151:

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AAAGTAGGAA | ATGGCTGCTT | CACCCAGGAG | GCACCAAGAT | GCCCGTGTGT | GGCTCTACTG | 60 | | | | | | | | | | |
| GTGATGCCCT | GGTCTTCATT | GAAAAGGCCA | GCACCCGTTA | CGTGGTCAGC | ACAGACGTTG | 120 | | | | | | | | | | |
| CCGTGAATGA | GGATTCCTTC | CTACAGATAG | ACTTCGCTGC | CTCCTGCTCA | GTCACAGACT | 180 | | | | | | | | | | |
| CTTGTTATGC | GATTGAATTG | GAATACTCAG | TAGATCTTGG | ATTGTCATGG | CACCCATTGG | 240 | | | | | | | | | | |
| TAAGGGACTG | TCTGCCTACC | A | ATG | TGG | AAT | GCA | GTC | GCT | ATC | ATC | TGC | AAC | 291 | | | |
| | | | Met | Trp | Asn | Ala | Val | Ala | Ile | Ile | Cys | Asn | | | | |
| | | | -35 | | | | | | -30 | | | | | | | |
| GGA | TCC | TGG | TGT | CAG | ACA | CDW | TCA | ACA | AGT | GGA | CTA | GAA | TCA | CTC | TGC | 339 |
| Gly | Ser | Trp | Cys | Gln | Thr | Xaa | Ser | Thr | Ser | Gly | Leu | Glu | Ser | Leu | Cys | |
| | -25 | | | | | -20 | | | | | -15 | | | | | |
| CTC | TCC | CTC | CTT | ATA | CCA | GGT | CCC | AAG | CCA | CTC | GTT | TCC | GTT | GGC | ATC | 387 |
| Leu | Ser | Leu | Leu | Ile | Pro | Gly | Pro | Lys | Pro | Leu | Val | Ser | Val | Gly | Ile | |
| -10 | | | | | -5 | | | | | 1 | | | | 5 | | |

(B) LOCATION: 80..187
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.9
 seq VVEILPYLPCLTA/RD

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 153:

```

AGGGGTACCG AGTCTCGTTT CCTCTCAGTC CATCCACCCT TCATGGGGCC AGAGCCCTCT   60
CTCCAGAATC TGAGCAGCA ATG CCG TTT GCT GAA GAC AAG ACC TAT AAG TAT   112
          Met Pro Phe Ala Glu Asp Lys Thr Tyr Lys Tyr
          -35                               -30

ATC TGC CGC AAT TTC AGC AAT TTT TGC AAT GTG GAT GTT GTA GAG ATT   160
Ile Cys Arg Asn Phe Ser Asn Phe Cys Asn Val Asp Val Val Glu Ile
-25                               -20                               -15                               -10

CTG CCT TAC CTG CCC TGC CTC ACA GCA AGA GAC CAG GAT CGA CTG CGG   208
Leu Pro Tyr Leu Pro Cys Leu Thr Ala Arg Asp Gln Asp Arg Leu Arg
          -5                               1                               5

GCC ACC TGC ACA CTC TCA GGG AAC CGG GAC ACC CTC TGG CAT CTC TTC   256
Ala Thr Cys Thr Leu Ser Gly Asn Arg Asp Thr Leu Trp His Leu Phe
          10                               15                               20

AAT ACC   262
Asn Thr
          25
  
```

(2) INFORMATION FOR SEQ ID NO: 154:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 165 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 46..153
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.8
 seq GTDSLSFLPPCPC/CP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 154:

```

AATCATGAAA TCCTTGCAAC TCATTAAAGTT TCCTGTTTGC TGTAG ATG CCA GGA AGC   57
          Met Pro Gly Ser
          -35

TCA GGG CTC AGA TTT ATA TGT AAG TCC AGG AAC CAT CCT CAG TTT GGG   105
  
```

(2) INFORMATION FOR SEQ ID NO: 155:

(A) LENGTH: 261 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(A) NAME/KEY: sig_peptide
(B) LOCATION: 64..234
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq QLXLVMEFCGAGS/VT

| | | | | | | | |
|---|------------|-------------|------------|-------------|------------|-----|-----|
| ACATACGGGC | AAGTTTATAA | GGGTCGT CAT | GTCAAAACGG | GCCAGCTTG C | AGCCATCAAG | | 60 |
| GTT ATG GAT GTC ACA GGG GAT GAA GAG GAA GAA ATC AAA CAA GAA ATT | | | | | | | 108 |
| Met Asp Val Thr Gly Asp Glu Glu Glu Glu Ile Lys Gln Glu Ile | | | | | | | |
| -55 | | | | -50 | | -45 | |
| AAC ATG TTG AAG AAA TAT TCT CAT CAC CGG AAT ATT GCT ACA TAC TAT | | | | | | | 156 |
| Asn Met Leu Lys Lys Tyr Ser His His Arg Asn Ile Ala Thr Tyr Tyr | | | | | | | |
| -40 | | | | -35 | | -30 | |
| GGT GCT TTT ATC AAA AAG AAC CCA CCA GGC ATG GAT GAC CAA CTT TGR | | | | | | | 204 |
| Gly Ala Phe Ile Lys Lys Asn Pro Pro Gly Met Asp Asp Gln Leu Xaa | | | | | | | |
| -25 | | | | -20 | | -15 | |
| TTG GTG ATG GAG TTT TGT GGT GCT GGC TCT GTC ACC GAC CTG ATC AAG | | | | | | | 252 |
| Leu Val Met Glu Phe Cys Gly Ala Gly Ser Val Thr Asp Leu Ile Lys | | | | | | | |
| -10 | | | | -5 | | 1 | 5 |
| AAC ACA GGG | | | | | | | 261 |
| Asn Thr Gly | | | | | | | |

(2) INFORMATION FOR SEO ID NO: 156:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 126 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: CDNA
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain
- (ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 49..120
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.8
 seq KLFLVFLLNICKG/IV
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 156:

| | |
|--|-----|
| ATCTCTAGAA AGAAGAAGGC ATGCTACAAA TAGGAAGGAA TTGTAATA ATG ATA TTT | 57 |
| Met Ile Phe | |
| GGC CTC TAC TTT GTC TTA GCT GTT AAA CTG TTT TTA GTA TTT TTG TTA | 105 |
| Gly Leu Tyr Phe Val Leu Ala Val Lys Leu Phe Leu Val Phe Leu Leu | |
| -20 -15 -10 | |
| AAT ATT TGC AAA GGG ATC GTG | 126 |
| Asn Ile Cys Lys Gly Ile Val | |
| -5 1 | |

(2) INFORMATION FOR SEQ ID NO: 157:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 383 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: CDNA
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain
- (ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 246..347
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.6
 seq IKCSSWISSLASG/IP
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 157:

| | |
|---|----|
| AGTATTGAGT TGGAAGTGCC CATTGGACAT CACGTGGAGA TGAAATAGGC AATTAAAATA | 60 |
|---|----|

```

TTCAGATCTT GGGTTCAGGA GCGAGACCCA TGTCTGAAAT ATAAACTTGC TCACTGTCAG 120
CCTGTGATGG TCTTTGTGAG ACATAGAATG AATATTAATA AAGAGGTGTA AGGACTGATC 180
CTGGGATCAT CCACAGTAAG GCTGGGGGAA GAGGAGACCT GGCAAAGGAA TCAAAGACAT 240
GATCC ATG AGG AAG AAG CGA GTR GAA GAA CTA ATA GTG TTT CCA GGA GAA 290
      Met Arg Lys Lys Arg Val Glu Glu Leu Ile Val Phe Pro Gly Glu
              -30                -25                -20

GTA ACT TCT TTC TCC TCC ATC AAG TGC TCC TCT TGG ATT TCT TCC CTG 338
Val Thr Ser Phe Ser Ser Ile Lys Cys Ser Ser Trp Ile Ser Ser Leu
              -15                -10                -5

GCT TCT GGA ATA CCA CAC TCT CTT GGA TTC TCC CTT CCC CCA GGG 383
Ala Ser Gly Ile Pro His Ser Leu Gly Phe Ser Leu Pro Pro Gly
              1                5                10

```

(2) INFORMATION FOR SEQ ID NO: 158:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 257..340
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6
seq ACLFSXFLAVSRH/PN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 158:

```

AAGAACCCTT TTTATAGATA GGTCTGTCT GGATTTGTGC ACGTGGATTT ATAATGAGAG 60
ATTTTCTAGT TGTTTTTGGT TCTCCTCCTC CTCCTCCTCC TTDHCCTCC TTCTVTTCTT 120
CCTTTTCTTC CTCCTTWTCT TCTAAAACCT CTAATCTCTT ATTCCCTCTA ATGTCTGACC 180
AAAGTACTGC TGTCTGAGAC ATTGGAGGCA TACTGTGCTC CTCTTCTTCC CTCCCTGTGG 240
AGAAGCCTTA AGTTAT ATG CCT TCA TCC AGT CTT GCA GAG TTG TGT CTA ATG 292
      Met Pro Ser Ser Ser Leu Ala Glu Leu Cys Leu Met
              -25                -20

CAG CAA GAT GCC TGC CTG TTT TCT KTG TTC CTA GCW GTC TCC AGG CAT 340
Gln Gln Asp Ala Cys Leu Phe Ser Xaa Phe Leu Ala Val Ser Arg His
      -15                -10                -5

```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CCA | AAC | TAT | NVK | TGT | TCC | ATC | AGT | ACT | AAG | GGT | GAG | GTG | AGA | GAG | AAA | 388 |
| Pro | Asn | Tyr | Xaa | Cys | Ser | Ile | Ser | Thr | Lys | Gly | Glu | Val | Arg | Glu | Lys | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | | | | | | | | | | | | | | | | |
| CTA | GTT | CCT | TGG | ATA | ACA | CAC | CAA | ATG | GCC | AGA | ATG | TTG | | | | 427 |
| Leu | Val | Pro | Trp | Ile | Thr | His | Gln | Met | Ala | Arg | Met | Leu | | | | |
| | | | 20 | | | | | 25 | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 159:

(i) SEQUENCE CHARACTERISTICS:

- SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 158 base pairs
 - (B) TYPE: NUCLEIC ACID
 - (C) STRANDEDNESS: DOUBLE
 - (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 21..140
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.6
seq LQMRMOLPCLVLG/EE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 159:

| | | | | | |
|---|-----|------------|--|---|----|
| AATTTTCAGT | | AGGAAACATT | | ATG GAT CTG TGG AGC TGC TTA TTT CCA GTG ATG | 53 |
| | | | | Met Asp Leu Trp Ser Cys Leu Phe Pro Val Met | |
| | | -40 | | -35-30 | |
| CTG ATG GAG CCA TCC AAA GGG CTG GAA GAT TCA GAG TGG AAA ATG GCT | 101 | | | | |
| Leu Met Glu Pro Ser Lys Gly Leu Glu Asp Ser Glu Trp Lys Met Ala | | | | | |
| | | -25 | | -20-15 | |
| CTT CAG ATG AGA ATG CAA CTG CCC TGC CTG GTA CTT GGC GAA GAA CAG | 149 | | | | |
| Leu Gln Met Arg Met Gln Leu Pro Cys Leu Val Leu Gly Glu Glu Gln | | | | | |
| | | -10 | | -51 | |
| ACG CTT GGG | | | | | |
| Thr Leu Gly | 158 | | | | |
| 5 | | | | | |

(2) INFORMATION FOR SEQ ID NO: 160:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 319 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 209..289
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.6
seq AVPLPTTSTLTSA/ST

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 160:

```

AAGTTCTGTG GGCTCTATTC GGCCATATTA ATAAAGAGAA AGGGAAGGCT GACHGTCCTT    60
CGCCTCCGCC CCCACATACA CACCCCTTCT TCCCACTCCG CTCTCACGAC TAAGCTCTCA    120
CGATTAAGGC ACGCCTGCCT CGATTGTCCA GCCTCTGCCA GAAGAAAGCT TAGCAGCCAG    180
CGCCTCAGTA GAGACCTAAG GGCGCTGA ATG AGT GGG AAA GGG AAA TGC CGA        232
                Met Ser Gly Lys Gly Lys Cys Arg
                -25                      -20

CCA ATT GCG CTG CGG CGG GCT GTG CCA TTA CCT ACA ACA AGC ACA TTA        280
Pro Ile Ala Leu Arg Arg Ala Val Pro Leu Pro Thr Thr Ser Thr Leu
                -15                      -10                      -5

ACA TCA GCT TCC ACA GGT TTC CTT TGG ATC CTA AAA GAA                    319
Thr Ser Ala Ser Thr Gly Phe Leu Trp Ile Leu Lys Glu
                1                      5                      10

```

(2) INFORMATION FOR SEQ ID NO: 161:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 91 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 14..67
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.6
seq IQKSSGLFCPSQA/QS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 161:

```

AGAAAATGGA AAA ATG ACC CCA AAG GCA ATT CAG AAA TCA TCA GGG CTC        49
Met Thr Pro Lys Ala Ile Gln Lys Ser Ser Gly Leu

```

-15

-10

TTC TGC CCA TCA CAG GCC CAG AGC GCA AGA CCC GCA GAA AAG
 Phe Cys Pro Ser Gln Ala Gln Ser Ala Arg Pro Ala Glu Lys
 -5 1 5

91

(2) INFORMATION FOR SEQ ID NO: 162:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 364 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 56..271
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6
seq CTSLLQLYDASNS/EW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 162:

AAACTCGCTG GGCTCCAAAA GAAACACTGG CTTCTCTCCT TCAGCTCCAG GCTAG ATG 58
 Met

CCA GAC CAG TTT GAC CAG GCG GTT GTG CTG AAC CAG CTG CGG TAC TCA 106
 Pro Asp Gln Phe Asp Gln Ala Val Val Leu Asn Gln Leu Arg Tyr Ser
 -70 -65 -60

GGG ATG CTG GAG ACT GTG AGA ATC CGC AAA GCT GGG TAT GCG GTC CGA 154
 Gly Met Leu Glu Thr Val Arg Ile Arg Lys Ala Gly Tyr Ala Val Arg
 -55 -50 -45 -40

AGA CCC TTT CAG GAC TTT TAC AAA AGG TAT AAA GTG CTG ATG AGG AAT 202
 Arg Pro Phe Gln Asp Phe Tyr Lys Arg Tyr Lys Val Leu Met Arg Asn
 -35 -30 -25

CTG GCT CTG CCT GAG GAC GTC CGA GGG AAG TGC ACG AGC CTG CTG CAG 250
 Leu Ala Leu Pro Glu Asp Val Arg Gly Lys Cys Thr Ser Leu Leu Gln
 -20 -15 -10

CTC TAT GAT GCC TCC AAC AGC GAG TGG CAG CTG GGG AAG ACC AAG GTC 298
 Leu Tyr Asp Ala Ser Asn Ser Glu Trp Gln Leu Gly Lys Thr Lys Val
 -5 1 5

TTT CTT CGA GAA TCC TTG GAA CAG AAA CTG GAG AAG CGG AGG GAA GAG 346
 Phe Leu Arg Glu Ser Leu Glu Gln Lys Leu Glu Lys Arg Arg Glu Glu
 10 15 20 25

GAA GTG AGC CAC GCT GGG 364
 Glu Val Ser His Ala Gly

(2) INFORMATION FOR SEQ ID NO: 163:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 185 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 129..173
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6
seq LVSFFLELNVLQQ/WP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 163:

```

AGTAGACCGC GCACTGGAAG GCGTGCGCGC AGGTGTGCGT GACCATGTGC TTGAAACGGC   60
AGTAGCGCAS RNGNAAGGAT CGCCATCACA CGGCGCACTG GTGCGGCTTC TCCCCGAGT   120
GGACGAAC ATG TGC TTG GTG TCG TTT TTC CTT GAG CTG AAC GTC TTG CAA   170
      Met Cys Leu Val Ser Phe Phe Leu Glu Leu Asn Val Leu Gln
      -15                      -10                      -5

CAG TGG CCG GCA GGG                               185
Gln Trp Pro Ala Gly
      1

```

(2) INFORMATION FOR SEQ ID NO: 164:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 234 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 103..141
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6

seq MRSACLTPCGHA/GS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 164:

```

ATACCTCTTC CAGTTGGGAA AAAATGGACT TAAAATGTCC CATGTCCAGG CTGACCTGGA      60
TGATGACAGT TGGTTGATGA GTTAATTTGA ACATGAGCAG AA ATG AGG TCA CTT      114
                                   Met Arg Ser Leu
                                   -10

GCC TGC CTG ACT CCA TGT GGC CAT GCT GGC TCC AGG TTG CAA AGT TCT      162
Ala Cys Leu Thr Pro Cys Gly His Ala Gly Ser Arg Leu Gln Ser Ser
                                   -5                               1                               5

TTG AGC AAG TAC CTT GTC TTG CCT AAT CTC GAA TGT CTG TTC TTT TTA      210
Leu Ser Lys Tyr Leu Val Leu Pro Asn Leu Glu Cys Leu Phe Phe Leu
                                   10                               15                               20

TTT CTT ATC TCA AAT AGG CGC TGG      234
Phe Leu Ile Ser Asn Arg Arg Trp
                                   25                               30

```

(2) INFORMATION FOR SEQ ID NO: 165:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 315 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 70..108
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5
seq MHLLSNWANPASS/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 165:

```

AAGTGGCCAT GCGGGATACA GCGACTACAG CATCGGCGGC GCGGGCTAGT GCCGCTAGCG      60
CCTCGAGCG ATG CAC CTC CTT TCC AAC TGG GCA AAC CCC GCT TCC AGC AGA      111
      Met His Leu Leu Ser Asn Trp Ala Asn Pro Ala Ser Ser Arg
                                   -10                               -5                               1

CGT CCT TCT ATG GCC GCT TCA GGC ACT TCT TGG ATA TCA TCG ACC CTC      159
Arg Pro Ser Met Ala Ala Ser Gly Thr Ser Trp Ile Ser Ser Thr Leu
                                   5                               10                               15

GCA CAC TCT TTG TCA CTG AGA GAC GTC TCA GAG AGG CTG TGC AGC TGC      207
Ala His Ser Leu Ser Leu Arg Asp Val Ser Glu Arg Leu Cys Ser Cys

```

| 20 | 25 | 30 | |
|---|----|----|-----|
| TGG AGG ACT ATA AGC ATG GGA CCC TGC GCC CGG GGG TCA CCA ATG AAC | | | 255 |
| Trp Arg Thr Ile Ser Met Gly Pro Cys Ala Arg Gly Ser Pro Met Asn | | | |
| 35 | 40 | 45 | |
| AGC TCT GGA GTG CAC AGA AAA TCA AGC AGG CTA TTC TAC ATC CGG ACA | | | 303 |
| Ser Ser Gly Val His Arg Lys Ser Ser Arg Leu Phe Tyr Ile Arg Thr | | | |
| 50 | 55 | 60 | 65 |
| CCA ATG AGA AGA | | | 315 |
| Pro Met Arg Arg | | | |

(2) INFORMATION FOR SEQ ID NO: 166:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 415 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 62..133
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5
seq FAMLHSVWRLIPA/FR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 166:

| | |
|---|-----|
| AAAGGAGCCA ACYKCACAGT ACATTTCTCT TTGTCATGAA TTGCATACTT TGTTCCAAGT | 60 |
| C ATG TGG TCT GGA AAG TGG GCG TTG GTC TCA CCA TTT GCT ATG CTA CAC | 109 |
| Met Trp Ser Gly Lys Trp Ala Leu Val Ser Pro Phe Ala Met Leu His | |
| -20 -15 -10 | |
| TCA GTG TGG AGA CTC ATT CCT GCC TTT CGT GGT TAC GCC CAA CAA GAC | 157 |
| Ser Val Trp Arg Leu Ile Pro Ala Phe Arg Gly Tyr Ala Gln Gln Asp | |
| -5 1 5 | |
| GCT CAG GAA TTT CTT TGT GAA CTT TTA GAT AAA ATA CAA CGT GAA TTA | 205 |
| Ala Gln Glu Phe Leu Cys Glu Leu Leu Asp Lys Ile Gln Arg Glu Leu | |
| 10 15 20 | |
| GAG ACA ACT GGT ACC AGT TTA CCA GCT CTT ATC CCC ACT TCT CAA AGG | 253 |
| Glu Thr Thr Gly Thr Ser Leu Pro Ala Leu Ile Pro Thr Ser Gln Arg | |
| 25 30 35 40 | |
| AAA CTC ATC AAA CAA GTT CTG AAT GTT GTA AAT AAC ATT TTT CAT GGA | 301 |
| Lys Leu Ile Lys Gln Val Leu Asn Val Val Asn Asn Ile Phe His Gly | |
| 45 50 55 | |

| | |
|---|-----|
| CAA CTT CTT AGT CAG GTT ACA TGT CTT GCA TGT GAC AAC AAA TCA AAT | 349 |
| Gln Leu Leu Ser Gln Val Thr Cys Leu Ala Cys Asp Asn Lys Ser Asn | |
| 60 65 70 | |
| ACC ATA GAA CCT TTC TGG GAC TTG TCA TTG GAG TYT CCA GAA AGG TAT | 397 |
| Thr Ile Glu Pro Phe Trp Asp Leu Ser Leu Glu Xaa Pro Glu Arg Tyr | |
| 75 80 85 | |
| CAA TGC AGT NGA AAA GGG | 415 |
| Gln Cys Ser Xaa Lys Gly | |
| 90 | |

(2) INFORMATION FOR SEQ ID NO: 167:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 252 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 130..189
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5
seq KFCLICLLTFIFH/HC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 167:

| | |
|---|-----|
| AAGACGCGCC GGTTCCTGCG ACGCAGTTAG CGCAGTCTGC TTTGGTGAAT ACACGATTTC | 60 |
| GTGCAGCCGG GGTTCGGTAC CGAGCGGAGA GGAGATGCAC ACGGCACTCG AGTGTGAGGA | 120 |
| AAAATAGAA ATG AAG GTA CAT ATG CAC ACA AAA TTT TGC CTC ATT TGT TTG | 171 |
| Met Lys Val His Met His Thr Lys Phe Cys Leu Ile Cys Leu | |
| -20 -15 -10 | |
| CTG ACA TTT ATT TTT CAT CAT TGC AAC CAT TGC CAT GAA GAA CAT GAC | 219 |
| Leu Thr Phe Ile Phe His His Cys Asn His Cys His Glu Glu His Asp | |
| -5 1 5 10 | |
| CAT GGC CCT GAA GCG CTT CAC AGA CAG CAA GGG | 252 |
| His Gly Pro Glu Ala Leu His Arg Gln Gln Gly | |
| 15 20 | |

(2) INFORMATION FOR SEQ ID NO: 168:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 290..361

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.5

seq ALSLFYTADTSHG/SE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 168:

```

ATATTTCTTG TCAACAGTAT TGAAATGTAA TATGTATGTG TTCATGTATG AGMAATTTTT    60
ACTCCACACA GGTGTTTCAG TAGAGTGGGG CAGGAAAAGA GATCTCTTCG ATTTCTTTCA    120
GGCCTGAGGC TTTTGTGAAA TGCGTASCSC CCTGTGACAG TAGGTTTTGA TGCTAGTGAT    180
CTTCAGATCT TTCTCTCTGG AAATGTGCAG AGAGTGTCAG TTTCCCAAGT TCTGAGGTAA    240
CTCTCAGCCC AGATGTGAAA TGGGAGCCTA CCAGCTGGTA TAGAAGGGA ATG GGT AGG    298
                               Met Gly Arg

AGG CAC TGG GTG CTG ACT CAT TCA GCA CTG TCC CTT TTC TAT ACT GCT    346
Arg His Trp Val Leu Thr His Ser Ala Leu Ser Leu Phe Tyr Thr Ala
   -20                               -15                               -10

GAT ACA TCC CAT GGT TCT GAG AAG CCT TAT CTC AGT CTA TTT GGA AGA    394
Asp Thr Ser His Gly Ser Glu Lys Pro Tyr Leu Ser Leu Phe Gly Arg
   -5                               1                               5                               10

GAG GGA GGW AGA GAA GGR AGT AAC CCA AAG TAC TAC TCA TTT    436
Glu Gly Gly Arg Glu Gly Ser Asn Pro Lys Tyr Tyr Ser Phe
      15                               20                               25

```

(2) INFORMATION FOR SEQ ID NO: 169:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 343 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 104..336

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..233
id H07998
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..336
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..227
id W37530
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..336
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..227
id R79812
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..336
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..227
id N24900
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..336
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..227
id R34849
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 65..112
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 12.5
seq FVLLALVAGVLG/NE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 169:

```
ATGTCGCCCG TGTCCCGCCG GCCCGTTCCG TGTCGCCCG CAGTGYTGCG GCCGCCGCKK    60
CACC ATG GCT GTG TTT GTC GTG CTC CTG GCG TTG GTG GCG GGT GTT TTG    109
Met Ala Val Phe Val Val Leu Ala Leu Val Ala Gly Val Leu
   -15                -10                -5

GGG AAC GAG TTT AGT ATA TTA AAA TCA CCA GGG TCT GTT GTT TTC CGA    157
Gly Asn Glu Phe Ser Ile Leu Lys Ser Pro Gly Ser Val Val Phe Arg
   1                5                10                15
```

| | |
|---|-----|
| AAT GGA AAT TGG CCT ATA CCA GGA GAG CGG ATC CCA GAC GTG GCT GCA | 205 |
| Asn Gly Asn Trp Pro Ile Pro Gly Glu Arg Ile Pro Asp Val Ala Ala | |
| 20 25 30 | |
| TTG TCC ATG GGC TTC TCT GTG AAA GAA GAC CTT TCT TGG CCA GGA CTC | 253 |
| Leu Ser Met Gly Phe Ser Val Lys Glu Asp Leu Ser Trp Pro Gly Leu | |
| 35 40 45 | |
| GCA GTG GGT AAC CTG TTT CAT CGT CCT CGG GCT AGC GTC ATG GTG ATG | 301 |
| Ala Val Gly Asn Leu Phe His Arg Pro Arg Ala Ser Val Met Val Met | |
| 50 55 60 | |
| GTG AAG GGA GTT AAC AAC TMC CCT CTA CCC CCA NGN TGG NGG | 343 |
| Val Lys Gly Val Asn Asn Xaa Pro Leu Pro Pro Xaa Trp Xaa | |
| 65 70 75 | |

(2) INFORMATION FOR SEQ ID NO: 170:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 234 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 111..209
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 90
region 1..99
id N50844
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 186..232
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 75..121
id N50844
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 111..209
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 90
region 1..99
id N29905
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 186..232
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 93
 region 75..121
 id N29905
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 186..232
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 93
 region 75..121
 id N62597
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 186..232
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 93
 region 76..122
 id R80247
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 186..232
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 93
 region 76..122
 id H03409
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 40..87
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 10.1
 seq LLLQLAVLGAALA/AA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 170:

| | |
|---|-----|
| AAGAGGTGCG GGATTGGGCG GGCTGCCACG GCATGGAGA ATG GCT CCG CTT CTG | 54 |
| Met Ala Pro Leu Leu | |
| -15 | |
| TTG CAG CTG GCG GTG CTC GGC GCG GCG CTG GCG GCC GCA GCC CTC GTA | 102 |
| Leu Gln Leu Ala Val Leu Gly Ala Ala Leu Ala Ala Ala Leu Val | |
| -10 -5 1 5 | |
| CTG ATT TCC ATC GTT GCA TTT ACA ACT GCT ACA AAA ATG CCA GCA CTC | 150 |
| Leu Ile Ser Ile Val Ala Phe Thr Thr Ala Thr Lys Met Pro Ala Leu | |
| 10 15 20 | |
| CAT CGA CAT GAA GAA GAG AAA TTC TTC TTA AAT GCC AAA GGC CAG AAA | 198 |
| His Arg His Glu Glu Lys Phe Phe Leu Asn Ala Lys Gly Gln Lys | |
| 25 30 35 | |

GAA ACT TTA CCC AGC ATA TGG GAC TCA CCT ACC AGG
 Glu Thr Leu Pro Ser Ile Trp Asp Ser Pro Thr Arg
 40 45

234

(2) INFORMATION FOR SEQ ID NO: 171:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 386 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 52..228
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 1..177
id AA074050
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 266..387
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 218..339
id AA074050
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 135..284
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.8
seq LLRLQLVSTCVA/FS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 171:

```

AGCGGCCGCA GCCAGCCAGG CCGCGCMMGG GACGACTGCA GAGCGCGGTG CTCTTACAGC    60
CTGTTCCAAG TGTGGCTTAA TCGTCTCCA CCACCAGATC TTTCTCCGTG GATTCCTCTG    120
CTAAGACCGC TGCC ATG CCA GTG ACG GTA ACC CGC ACC ACC ATC ACA ACC    170
           Met Pro Val Thr Val Thr Arg Thr Thr Ile Thr Thr
           -50                      -45                      -40
ACC ACG ACG TCA TCT TCG GGC CTG GGG TCC CCC ATG ATC GTG GGG TCC    218
Thr Thr Thr Ser Ser Gly Leu Gly Ser Pro Met Ile Val Gly Ser
           -35                      -30                      -25
CCT CGG GCC CTG ACA CAG CCC CTG GGT CTC CTT CGC CTG CTG CAG CTG    286

```


| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pro | Arg | Ala | Leu | Thr | Gln | Pro | Leu | Gly | Leu | Leu | Arg | Leu | Leu | Gln | Leu | | |
| | | -20 | | | | | -15 | | | | | -10 | | | | | |
| GTG | TCT | ACC | TGC | GTG | GCC | TTC | TCG | CTG | GTG | GCT | AGC | GTG | GGC | GCC | TGG | 314 | |
| Val | Ser | Thr | Cys | Val | Ala | Phe | Ser | Leu | Val | Ala | Ser | Val | Gly | Ala | Trp | | |
| | -5 | | | | | 1 | | | 5 | | | | | | 10 | | |
| ACG | GGG | TCC | ATG | GGC | AAC | TGG | TCC | ATG | TTC | ACC | TGG | TGC | TTC | TGC | TTC | 362 | |
| Thr | Gly | Ser | Met | Gly | Asn | Trp | Ser | Met | Phe | Thr | Trp | Cys | Phe | Cys | Phe | | |
| | | | | 15 | | | | 20 | | | | | 25 | | | | |
| TCN | GTG | ACC | CTG | ATC | ATC | CTC | ATC | | | | | | | | | 386 | |
| Ser | Val | Thr | Leu | Ile | Ile | Leu | Ile | | | | | | | | | | |
| | | | | 30 | | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 172:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 326 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 147..290
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 57..200
id W40499
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 90..151
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..62
id W40499
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 100..319
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 46..265
id R88049
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 100..319

(C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 56..275
 id T08712
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 100..319
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 32..251
 id H38484
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 147..319
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 65..237
 id T65344
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 102..151
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 21..70
 id T65344
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 111..164
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 9.2
 seq VFLCSLLAPMVLA/SA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 172:

```

AGACTCTTGG GGACTGGGCT GAGGACGGGG TGGTACTGCT CCTGGCAGGG CCAGAGGTGG      60
ATGGGGCTTG AAAAGGGGGT TCAAGGCAGC AGMTCTATGG TTCAGACGCC ATG GAG      116
                                     Met Glu
TTG GTG CTG GTC TTC CTC TGC AGC CTG CTG GCC CCC ATG GTC CTG GCC      164
Leu Val Leu Val Phe Leu Cys Ser Leu Leu Ala Pro Met Val Leu Ala
-15                      -10                      -5
AGT GCA GCT GAA AAG GAG AAG GAA ATG GAC CCT TTT CAT TAT GAT TAC      212
Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe His Tyr Asp Tyr
1                      5                      10                      15
CAG ACC CTG AGG ATT GGG GGA CTG GTG TTC GCT GTG GTC CTC TTC TCG      260
Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala Val Val Leu Phe Ser
20                      25                      30
GTT GGG ATC CTC CTT ATC CTA AGT CGC AGG TGC AAG TGC AGT TTC AAT      308

```

Val Gly Ile Leu Leu Ile Leu Ser Arg Arg Cys Lys Cys Ser Phe Asn
35 40 45

CAG AAG CCC CGC AAC AGA
Gln Lys Pro Arg Asn Arg
50

326

(2) INFORMATION FOR SEQ ID NO: 173:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 376 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 74..344
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 73..343
id H95186
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 25..86
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 25..86
id H95186
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 138..377
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..240
id N40665
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 203..308
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 230..335
id W25197
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: 167..304
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.9
 seq LLGLLSAEQLAEA/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 173:

```

AACGGGCGTC GGAAGACGC TGCTGGTGAA ACGGCTGCAG GAGGTGAGCT CCCGGGATGG      60
GAAAGGCGAC CTGGGGGAGC CGCCCCGAC ACGGCCACG GTGGGCACCA ATCTTACTGA      120
CATCGTGGCA CAGAGAAAGA TCACCATCCG GGAGCTTGGG GGGTGC ATG GGC CCC      175
                                     Met Gly Pro
                                     -45
ATC TGG TCC AGT TAC TAT GGA AAC TGC CGT TCT CTC CTG TTT GTG ATG      223
Ile Trp Ser Ser Tyr Tyr Gly Asn Cys Arg Ser Leu Leu Phe Val Met
      -40                      -35                      -30
GAC GCC TCT GAC CCC ACC CAG CTC TCT GCA TCC TGT GTG CAG CTC TTA      271
Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val Gln Leu Leu
      -25                      -20                      -15
GGT CTC CTT TCT GCA GAA CAA CTT GCA GAA GCA TCG GTG CTG ATA CTC      319
Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val Leu Ile Leu
      -10                      -5                      1                      5
TTC AAT AAA ATC GAC CTA CCC TGT TAC ATG TCC ACG GAG GAG ATG AAG      367
Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu Glu Met Lys
      10                      15                      20
TCA TTA ATC
Ser Leu Ile
      376
  
```

(2) INFORMATION FOR SEQ ID NO: 174:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 277 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 59..278
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 28..247
 id R78970
 est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 59..210
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 29..180
id R64509
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 196..278
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 167..249
id R64509
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 59..210
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 44..195
id H85714
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 196..278
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 182..264
id H85714
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 59..278
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 36..255
id H52756
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 59..278
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 5..224
id H49758
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 107..247
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.9
seq LLLPRVLLTMASG/SP

(xii) SEQUENCE DESCRIPTION: SEQ ID NO: 174:

```

ATCACGTGGC RGCCACCCAG GKAMGAAGAR NANVTCTTCC TGGGGTTVHT TCTCCGANRT      60
GACGTSYSGC CTTTGAGATC AACTCTCCTG TACCAGCGTA GGCCGC ATG AGT GGG      115
                                   Met Ser Gly
                                   -45
GGG CGG GCT CCC GCG GTC CTG CTC GGC GGA GTG GCC TCT CTG CTC CTG      163
Gly Arg Ala Pro Ala Val Leu Leu Gly Gly Val Ala Ser Leu Leu Leu
                                   -40                                   -35                                   -30
TCT TTT GTT TGG ATG CCG GCG CTG CTG CCT GTG GCC TCC CGC CTT TTG      211
Ser Phe Val Trp Met Pro Ala Leu Leu Pro Val Ala Ser Arg Leu Leu
                                   -25                                   -20                                   -15
TTG CTA CCC CGA GTC TTG CTG ACC ATG GCC TCT GGA AGC CCT CCG ACC      259
Leu Leu Pro Arg Val Leu Leu Thr Met Ala Ser Gly Ser Pro Pro Thr
                                   -10                                   -5                                   1
CAG CCC TCG CCG GCC TGG      277
Gln Pro Ser Pro Ala Trp
  5                                   10

```

(2) INFORMATION FOR SEQ ID NO: 175:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 180..390
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 134..344
id H08480
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 115..185
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..71
id H08480
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 113..232

(C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.9
 seq SLLLLFGGQFASS/QE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 175:

```

AGCAGAGCTT CCGCTTCCGG CCCTTCAGGC TCTGTCTCTG TGGAGACTGG GCTTTGGGAG      60
GKAGAAAGAG GGACCTAGCG CGGGCCGCGC AGGCGCACGG TGGGCAGCTG CA ATG GCG      118
                                     Met Ala
                                     -40

CTG TCG TGT ACC CTT AAC AGG TAT CTG CTC CTC ATG GCG CAG GAG CAT      166
Leu Ser Cys Thr Leu Asn Arg Tyr Leu Leu Leu Met Ala Gln Glu His
          -35                      -30                      -25

CTG GAG TTC CGC CTG CCG GAA ATA RRG TCT TTG CTT TTG CTT TTT GGA      214
Leu Glu Phe Arg Leu Pro Glu Ile Xaa Ser Leu Leu Leu Leu Phe Gly
          -20                      -15                      -10

GGT CAG TTT GCC AGC AGT CAA GAA ACT TAT GGA AAG TCA CCA TTT TGG      262
Gly Gln Phe Ala Ser Ser Gln Glu Thr Tyr Gly Lys Ser Pro Phe Trp
          -5                      1                      5                      10

ATT CTT AGC ATT CCC TCT GAA GAT ATT GCA AGA AAT TTG ATG AAA CGG      310
Ile Leu Ser Ile Pro Ser Glu Asp Ile Ala Arg Asn Leu Met Lys Arg
          15                      20                      25

ACA GTG TGT GCC AAG TCT ATA TTT GAA CTA TGG GGT CAT GGA CAA TCT      358
Thr Val Cys Ala Lys Ser Ile Phe Glu Leu Trp Gly His Gly Gln Ser
          30                      35                      40

CCT GAG GAG CTG TAC AGT TCT CTT AAA AAC      388
Pro Glu Glu Leu Tyr Ser Ser Leu Lys Asn
          45                      50
  
```

(2) INFORMATION FOR SEQ ID NO: 176:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 311 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 112..309
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
 region 69..266
 id AA149265
 est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 41..86
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..46
id AA149265
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 110..309
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 53..252
id W39570
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 56..86
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 2..32
id W39570
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 110..309
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 55..254
id N41332
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 53..86
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..34
id N41332
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 39..197
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.1
seq IAVGLGVAALAF/GR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 176:

```
AACTGCGGCG GCGCCTTGAG TCTCCGGGCC GCCTTGCC ATG GCT GCC CGT GGT GTC    56
                               Met Ala Ala Arg Gly Val
                               -50

ATC GCT GCA GTT GGC GAG AGT TTG CGC TAC GCT GAG TAC TTG CAG CCC    104
```


| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ala | Pro | Val | Gly | Glu | Ser | Leu | Arg | Tyr | Ala | Glu | Tyr | Leu | Gln | Pro | |
| | | -45 | | | | | -40 | | | | | -35 | | | | |
| TCG | GCC | AAA | CGG | CCA | GAC | GCC | GAC | GTC | GAC | CAG | CAG | AGA | CTG | GTA | AGA | 152 |
| Ser | Ala | Lys | Arg | Pro | Asp | Ala | Asp | Val | Asp | Gln | Gln | Arg | Leu | Val | Arg | |
| | -30 | | | | | -25 | | | | -20 | | | | | | |
| AGT | TTG | ATA | GCT | GTA | GGA | CTG | GGT | GTT | GCA | GCT | CTT | GCA | TTT | GCA | GGT | 200 |
| Ser | Leu | Ile | Ala | Val | Gly | Leu | Gly | Val | Ala | Ala | Leu | Ala | Phe | Ala | Gly | |
| -15 | | | | | -10 | | | | -5 | | | | | | 1 | |
| CGC | TAC | GCA | TTT | CGG | ATC | TGG | AAA | CCT | CTA | GAA | CAA | GTT | ATC | ACA | GAA | 248 |
| Arg | Tyr | Ala | Phe | Arg | Ile | Trp | Lys | Pro | Leu | Glu | Gln | Val | Ile | Thr | Glu | |
| | | 5 | | | | | 10 | | | | | 15 | | | | |
| ACT | GCA | AAG | AAG | ATT | TCA | ACT | CCT | AGC | TTT | TCA | TCC | TAC | TAT | AAA | GGA | 296 |
| Thr | Ala | Lys | Lys | Ile | Ser | Thr | Pro | Ser | Phe | Ser | Ser | Tyr | Tyr | Lys | Gly | |
| | 20 | | | | | | 25 | | | | | 30 | | | | |
| GGA | TTT | GAA | CGG | AGG | | | | | | | | | | | | 311 |
| Gly | Phe | Glu | Arg | Arg | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 177:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 384 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 43..87
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 8..52
id W32101
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 89..129
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 53..93
id W32101
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 292..375
- (C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 6.6
seq VLGXLFLGGLCRG/WD

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 177:

```

AAGAGCCGCG TTYAGTCTAT CGCTGCGGTT GCGAGCGCTG TAGGGAGCCT GTGCTGTGCC      60
GCGCAGTTAG GCAGCAGCAG CCGCGGAGCA GTAGCCGCCG TGGGAGGGAG CCATGAAGCA      120
TTACGAGGTA AGAAGCGAGA AACAGGGGCC GTGTGGCCAC TGCTGACCCA TTCTTTTTC      180
TTCTTTGCGG GACCACGGGA CCCCACTTTC TGGTCCTGTG CCCCGAAGGA AGAKCCAGAC      240
GGCGCAGGCG CAGTGGGCAA GCGTTGCGCC CCGGGCCACT CGTAAATTCC A ATG CGC      297
                                   Met Arg
ATG TGC GCA GGA AGT ATT TAT AAA TCT GCA ACC CAG GCT GTT TTG GGG      345
Met Cys Ala Gly Ser Ile Tyr Lys Ser Ala Thr Gln Ala Val Leu Gly
   -25                               -20                               -15

GWA CTT TTT CTT GGG GGT CTC TGC AGG GGC TGG GAC GCT      384
Xaa Leu Phe Leu Gly Gly Leu Cys Arg Gly Trp Asp Ala
-10                               -5                               1

```

(2) INFORMATION FOR SEQ ID NO: 178:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 425 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 73..317
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..245
id HUM506F10B
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 314..376
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 243..305
id HUM506F10B
est

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: 63..193
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..131
id AA056148
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 314..401
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 254..341
id AA056148
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 277..317
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 216..256
id AA056148
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 397..426
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 338..367
id AA056148
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 88..189
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..102
id HSC1FF051
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 314..401
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 230..317
id HSC1FF051
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 187..271
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 101..185
id HSC1FF051
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 269..317
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 184..232
id HSC1FF051
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 397..426
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 314..343
id HSC1FF051
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 87..200
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 1..114
id HSC16E081
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 314..401
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 231..318
id HSC16E081
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 199..275
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 114..190
id HSC16E081
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 269..317
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 185..233
id HSC16E081
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 397..426
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 315..344
id HSC16E081

est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 85..186
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 24..125
 id AA157365
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 183..263
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 90
 region 123..203
 id AA157365
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 337..401
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 278..342
 id AA157365
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 273..326
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 90
 region 213..266
 id AA157365
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 186..419
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 6.3
 seq TLIMLLSWQLSVS/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 178:

```

AATGCGCGCT CGCGNTCCCG CCCTCTAGCT GCGCTCGGCT GAGTCAGTCA GTCTGTCCGA   60
GTCTGTCCCTC GGAGCAGGCG GAGTAAAGGG ACTTGAGCGA GCCAGTTGCC GGATTATTCT  120
ATTTCCCTCTC CCTCTCTCCC GCCCCGTATC TCTTTTCACC CTTCTCCAC CCTCGCTCGC  180
GTASC ATG GCG GAG CGT CGG CGG CCA CTC AGT CCC ATT CCA TCT NNT CGT   230
      Met Ala Glu Arg Arg Arg Pro Leu Ser Pro Ile Pro Ser Xaa Arg
              -75                      -70                      -65

CGT CCT TCG GAG CCG AGC CGT CCG CGC CCG GCG GCG GCG GGA SCC AGG   273
Arg Pro Ser Glu Pro Ser Arg Pro Arg Pro Ala Ala Ala Gly Xaa Arg
      -60                      -55                      -50

```

| | |
|---|-----|
| AGC CTG CCC CGC CCT GGG GAC GAA GAG CTG CAG CTC CCC TGT GCG GTG | 326 |
| Ser Leu Pro Arg Pro Gly Asp Glu Glu Leu Gln Leu Pro Cys Ala Val | |
| -45 -40 -35 | |
| | |
| CAC GAT CTG ATT TTC TGG AGA GAT GTG AAG AAG ACT GGG TTT GTC TTT | 374 |
| His Asp Leu Ile Phe Trp Arg Asp Val Lys Lys Thr Gly Phe Val Phe | |
| -30 -25 -20 | |
| | |
| GGC ACC ACG CTG ATC ATG CTG CTT TCC TGG CAG CTT TCA GTG TCA TCA | 422 |
| Gly Thr Thr Leu Ile Met Leu Leu Ser Trp Gln Leu Ser Val Ser Ser | |
| -15 -10 -5 1 | |
| | |
| GTG | 425 |
| Val | |

(2) INFORMATION FOR SEQ ID NO: 179:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 403 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 105..351
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 49..295
id R47336
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 58..107
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..50
id R47336
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 352..381
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 295..324
id R47336
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: 5..331
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 6
 seq LQLLLGMTASAVA/AL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 179:

| | |
|--|-----|
| AAAG ATG GCG GCT CCC GTC CTG CTA AGA GTG TCG GTG CCG CGG TGG GAG | 49 |
| Met Ala Ala Pro Val Leu Leu Arg Val Ser Val Pro Arg Trp Glu | |
| -105 -100 -95 | |
| CGG GTG GCC CGG TAT GCA GTG TGC GCT GCC GGA ATC CTG CTC TCC ATC | 97 |
| Arg Val Ala Arg Tyr Ala Val Cys Ala Ala Gly Ile Leu Leu Ser Ile | |
| -90 -85 -80 | |
| TAC GCC TAC CAC GTG GAG CGG GAG AAG GAG CGG GAC CCC GAG CAC CGG | 145 |
| Tyr Ala Tyr His Val Glu Arg Glu Lys Glu Arg Asp Pro Glu His Arg | |
| -75 -70 -65 | |
| GCC CTC TGC GAC CTG GGG CCC TGG GTG AAG TGC TCC GCC GCC CTT GCC | 193 |
| Ala Leu Cys Asp Leu Gly Pro Trp Val Lys Cys Ser Ala Ala Leu Ala | |
| -60 -55 -50 | |
| TCC AGA TGG GGT CGA GGA TTT GGT CTT TTG GGT TCC ATT TTT GGA AAG | 241 |
| Ser Arg Trp Gly Arg Gly Phe Gly Leu Leu Gly Ser Ile Phe Gly Lys | |
| -45 -40 -35 | |
| GAT GGT GTA TTA AAC CAG CCA AAC AGT GTC TTT GGA CTT ATA TTT TAT | 289 |
| Asp Gly Val Leu Asn Gln Pro Asn Ser Val Phe Gly Leu Ile Phe Tyr | |
| -30 -25 -20 -15 | |
| ATA CTA CAG TTA TTA CTT GGC ATG ACA GCA AGC GCT GTG GCG GCT TTG | 337 |
| Ile Leu Gln Leu Leu Leu Gly Met Thr Ala Ser Ala Val Ala Ala Leu | |
| -10 -5 1 | |
| ATC CTC ATG ACG TCC TCC ATC ATG TCG GTC GTG GGG TCC TGT ACC TGG | 385 |
| Ile Leu Met Thr Ser Ser Ile Met Ser Val Val Gly Ser Cys Thr Trp | |
| 5 10 15 | |
| CCT,ACA TTC TGT ACT ACG | 403 |
| Pro Thr Phe Cys Thr Thr | |
| 20 | |

(2) INFORMATION FOR SEQ ID NO: 180:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 367 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 112..260
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 121..269
id W31320
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 47..118
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 57..128
id W31320
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 273..333
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 282..342
id W31320
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 107..260
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 2..155
id T27259
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 273..369
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 168..264
id T27259
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 145..260
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 108..223
id AA157646
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 59..118
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 25..84
id AA157646
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 273..307
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 94
 region 245..279
 id SSC8A04
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 50..151
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.9
 seq LGAAALALLLANT/DV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 180:

```

AATATACTTC TTTGTCAAGA GAAGCAGAGG TGTGGACGCT GTGTATGAA ATG TCT TTC      58
                                   Met Ser Phe

CTC CAG GAC CCA AGT TTC TTC ACC ATG GGG ATG TGG TCC ATT GGT GCA      106
Leu Gln Asp Pro Ser Phe Phe Thr Met Gly Met Trp Ser Ile Gly Ala
-30                               -25                               -20

GGA GCC CTG GGG GCT GCT GCC TTG GCA TTG CTG CTT GCC AAC ACA GAC      154
Gly Ala Leu Gly Ala Ala Ala Leu Ala Leu Leu Leu Ala Asn Thr Asp
-15                               -10                               -5                               1

GTG TTT CTG TCC AAG CCC CWK AAA GCG GCC CTG GAG TAC CTG GAG GAT      202
Val Phe Leu Ser Lys Pro Xaa Lys Ala Ala Leu Glu Tyr Leu Glu Asp
                    5                               10                               15

ATA GAC CTG AAA ACA CTG GAG AAG GAA CCA AGG ACT TTC AAA GCA AAG      250
Ile Asp Leu Lys Thr Leu Glu Lys Glu Pro Arg Thr Phe Lys Ala Lys
                20                               25                               30

GAG CTA TGG GAA AAA AAT GGA GCT GTG ATT ATG GCC GTG CGG AGG CCA      298
Glu Leu Trp Glu Lys Asn Gly Ala Val Ile Met Ala Val Arg Arg Pro
                35                               40                               45

GGC TGT TTC CTC TGT CGA GAG GAA GCT GCG GAT CTG TCC TCC CTG AAA      346
Gly Cys Phe Leu Cys Arg Glu Glu Ala Ala Asp Leu Ser Ser Leu Lys
                50                               55                               60                               65

AGC ATG TTG GAC CAG CTG GGC      367
Ser Met Leu Asp Gln Leu Gly
                    70

```

(2) INFORMATION FOR SEQ ID NO: 181:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 257 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

- (ii) MOLECULE TYPE: CDNA
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 138..257
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 83..202
 id W31692
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 55..131
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 1..77
 id W31692
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 136..257
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 78..199
 id H50194
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 57..131
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 1..75
 id H50194
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 57..257
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 1..201
 id H46855
 est
- (ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 138..257
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 81..200
 id H49687
 est
- (ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 57..132
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 1..76
 id H49687
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 138..257
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 80..199
 id T54405
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 58..124
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 2..68
 id T54405
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 90..200
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.9
 seq NLIMLGIFNVHS/AV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 181:

```

ATCTCTGCCC CCCTGCGAGG GCATCCTGGG CTTTCTCCCA CCGCTTTCCG AGCCCGCTTG      60
CACCTCGGCG ATCCCCGACT CCCTTCTTT ATG GCG TCG CTC CTG TGC TGT GGG      113
                               Met Ala Ser Leu Leu Cys Cys Gly
                               -35                               -30

CCG AAG CTG GCC GCC TGC GGC ATC GTC CTC AGC GCC TGG GGA GTG ATC      161
Pro Lys Leu Ala Ala Cys Gly Ile Val Leu Ser Ala Trp Gly Val Ile
                               -25                               -20                               -15

ATG TTG ATA ATG CTC GGA ATA TTT TTC AAT GTC CAT TCC GCT GTG TTG      209
Met Leu Ile Met Leu Gly Ile Phe Phe Asn Val His Ser Ala Val Leu
                               -10                               -5                               1

ATT GAG GAC GTT CCC TTC ACG GAG AAA GAT TTT GAG AAC GGC CCC CGG      257
Ile Glu Asp Val Pro Phe Thr Glu Lys Asp Phe Glu Asn Gly Pro Arg
      5                               10                               15

```

(2) INFORMATION FOR SEQ ID NO: 182:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 400 base pairs
 (B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 365..401
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..37
id R50224
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 305..364
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.9
seq XSLFLHAVSSSFT/QL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 182:

```

ATGACCACGG GTTTAACCTT CTTATCCCAG AGACACCCAA TTCTAGAGCT TTATGGAGCC   60
GTACTTCCCC CTGAATCCTA GCTCTAGGAC ATAGATCATG ACTCTCAGCC CTTTACCCA   120
GGATGGAGCT GGGGCCTGTA TAGCCATATT ATTGTTCTAA GTAAGTTCTA GCCCCACCCT   180
CCCGCCTTCT TGAGTGATAC CTATTACGGA TGAGTTCTGG AAAAGACCCA GCTATGATTC   240
ATAAAAACAC TTCTGGATGA ATCAAGAACC ATTTCTTGTT TKTCCTAGAT AATTCTCTAA   300
AAAT ATG ATT CTT CCA TAT AGA ATG CKA AGC TTA TTT TTA CAT GCA GTT   349
  Met Ile Leu Pro Tyr Arg Met Xaa Ser Leu Phe Leu His Ala Val
   -20                -15                -10

TCT AGC TCC TTC ACC CAG CTG AGG TCG TGC CAG GGA GAC AGA GTC TGG   397
Ser Ser Ser Phe Thr Gln Leu Arg Ser Cys Gln Gly Asp Arg Val Trp
   -5                1                5                10

AGA
Arg
400

```

(2) INFORMATION FOR SEQ ID NO: 183:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 256 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
(B) LOCATION: 86..186
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 5..105
id AA096741
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 23..211
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.8
seq LYTVRALAGRAWA/AV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 183:

```

AGAAGTGC GT SYCGGCGGGA TC ATG GCG ACT TTG GTC GAA CTG CCG GAC TCG      52
                Met Ala Thr Leu Val Glu Leu Pro Asp Ser
                        -60                                -55

GTC CTG CTC GAG ATC TTC TCT TAC CTC CCG GTA CGG GAC CGG ATC CGC      100
Val Leu Leu Glu Ile Phe Ser Tyr Leu Pro Val Arg Asp Arg Ile Arg
      -50                                -45                                -40

ATC TCC AGG GTC TGT CAC CGC TGG AAG AGG CTG GTG GAC GAC CGG TGG      148
Ile Ser Arg Val Cys His Arg Trp Lys Arg Leu Val Asp Asp Arg Trp
      -35                                -30                                -25

CTG TGG CGA CAT GTC GAC CTG ACG CTC TAC ACG GTA CGC GCA CTG GCC      196
Leu Trp Arg His Val Asp Leu Thr Leu Tyr Thr Val Arg Ala Leu Ala
      -20                                -15                                -10

GGG CGG GCC TGG GCC GCG GTC GCG GTG CCC GGA SCC CGA AGA CCA CCT      244
Gly Arg Ala Trp Ala Ala Val Ala Val Pro Gly Xaa Arg Arg Pro Pro
      -5                                1                                5                                10

CTC CCA CCC TGG
Leu Pro Pro Trp
                        15
                        256

```

(2) INFORMATION FOR SEQ ID NO: 184:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 352 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 183..348
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 78..243
 id W52941
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 286..348
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 96
 region 1..63
 id H55390
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 77..199
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.7
 seq LFSCFCFLSHKFG/KK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 184:

```

AAAAAATATC TCCCGGCGTG CGCTGCTTGT GTTATGTTTCG GGTTTTAAGT CGTGTCAGCG      60
TTTACATTTT CTTAAT ATG AAA AAT GCC TGC ATT GTT CTG CCG CCA ACT CCC      112
      Met Lys Asn Ala Cys Ile Val Leu Pro Pro Thr Pro
      -40                      -35                      -30

CCT CCC TCC CTG CAA CCC TCG GCC TCT CTG CTG GCG CCT AAT CGT TTT      160
Pro Pro Ser Leu Gln Pro Ser Ala Ser Leu Leu Ala Pro Asn Arg Phe
      -25                      -20                      -15

TTA TTC TCT TGC TTC TGC TTT CTT AGT CAC AAG TTT GGG AAG AAA GTC      208
Leu Phe Ser Cys Phe Cys Phe Leu Ser His Lys Phe Gly Lys Lys Val
      -10                      -5                      1

ATC TAT TTC AAC TAC CTG AGT GAG CTC CAC GAA CAC CTT AAA TAC GAC      256
Ile Tyr Phe Asn Tyr Leu Ser Glu Leu His Glu His Leu Lys Tyr Asp
      5                      10                      15

CAG CTG GTC ATC CCT CCC GAA GTT TTG CGG TAC GAT GAG AAG CTC CAG      304
Gln Leu Val Ile Pro Pro Glu Val Leu Arg Tyr Asp Glu Lys Leu Gln
      20                      25                      30                      35

AGC CTG CAC GAG GGC CGG ACG CCG MCT CCC ACC AAG ACA CCA CCA GGG      352
Ser Leu His Glu Gly Arg Thr Pro Xaa Pro Thr Lys Thr Pro Pro Gly
      40                      45                      50

```

(2) INFORMATION FOR SEQ ID NO: 185:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 274 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 99..260
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 126..287
id T53519
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 40..108
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 1..69
id T53519
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 113..269
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 131..287
id W87344
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 147..269
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 138..260
id N56542
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 113..149
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 105..141
id N56542
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 75..105
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96

```
region 1..31
id N56542
est
```

(ix) FEATURE:

[illegible]

(ix) FEATURE:

[illegible]

(ix) FEATURE:

[illegible]

(ix) FEATURE:

```
(A) NAME/KEY: sig_peptide
(B) LOCATION: 110..193
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION:  score 4.6
                        seq PLQWSLLVAVVAG/SV
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 185:

| | | | | | | | |
|---|------------|-------------|------------|-------------|-------------|----|-----|
| ACTTCCGCCT | GCGCCTGCGC | AGCVCAAGCTC | CSHGAGCCCT | GCCAACCATG | GTGAAC TTGG | | 60 |
| GTCTGTCCCG | GGTGGACGAC | GCCGTGGCTG | CCAAGCACCC | GGCACC GG C | ATG GCC TTT | | 118 |
| | | | | | Met Ala Phe | | |
| GGC TTG CAG ATG TTC ATT CAG AGG AAG TTT CCA TAC CCT TTG CAG TGG | | | | | | | 166 |
| Gly Leu Gln Met Phe Ile Gln Arg Lys Phe Pro Tyr Pro Leu Gln Trp | | | | | | | |
| -25 | | | -20 | | -15 | | -10 |
| AGC CTC CTA GTG GCC GTG GTT GCA GGC TCT GTG GTC AGC TAC GGG GTG | | | | | | | 214 |
| Ser Leu Leu Val Ala Val Val Ala Gly Ser Val Val Ser Tyr Gly Val | | | | | | | |
| | | | -5 | | | 1 | 5 |
| ACG AGA GTR RAG TCG GAG AAA TGC AAC AAC CTC TGG CTC TTC CTG GAG | | | | | | | 262 |
| Thr Arg Val Xaa Ser Glu Lys Cys Asn Asn Leu Trp Leu Phe Leu Glu | | | | | | | |
| | | 10 | | | | 15 | 20 |
| ACC GGA CTT GGG | | | | | | | 274 |
| Thr Gly Leu Gly | | | | | | | |
| | | 25 | | | | | |

(2) INFORMATION FOR SEQ ID NO: 187:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 423 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 50..246
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..197
id AA043070
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 241..373
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 191..323
id AA043070
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 371..408
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 322..359
id AA043070
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 186..357
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 29..200
id W81202
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 345..423
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 189..267
id W81202
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 64..177
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 85..198
 id W24858
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 178..227
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 90
 region 198..247
 id W24858
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 166..243
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.5
 seq ENSLIILLQGLQG/RV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 187:

```

AACTCTGCGC CCGGAGGACA GAGCGGCCCG GTCGCCGGCA TGGTTTCTCC GTCCTGCTGC      60
AGCCGGCGGG AGGCAGCCAG TCCAGGCGCC CGCTAGCTTC GGCGGCGACC CAGACGGGGA      120
AAGCGGAAGG AATGTCGCGT GCAAGCAGGC AGCTGGTGTG GAAGA ATG GCG GTG AGC      177
                                   Met Ala Val Ser
                                   -25

CAT TCA GTG AAG GAG CGG ACC ATC TCT GAG AAC AGC CTG ATC ATC CTA      225
His Ser Val Lys Glu Arg Thr Ile Ser Glu Asn Ser Leu Ile Ile Leu
   -20                      -15                      -10

CTG CAG GGC CTC CAG GGC CGG GTA ACC ACT GTG GAC CTG CGG GAT GAG      273
Leu Gln Gly Leu Gln Gly Arg Val Thr Thr Val Asp Leu Arg Asp Glu
   -5                      1                      5                      10

AGC GTG GCC CAC GGA CGC ATA GAC AAB GTC GAT GCT TTC ATG AAC ATC      321
Ser Val Ala His Gly Arg Ile Asp Xaa Val Asp Ala Phe Met Asn Ile
           15                      20                      25

CGC CTG GCC AAA GTC ACC TAC ACG GAC CGT TGG GGG CAT CAG GTC AAG      369
Arg Leu Ala Lys Val Thr Tyr Thr Asp Arg Trp Gly His Gln Val Lys
           30                      35                      40

CTG GAT GAC CTC TTT GTG ACA GGC CGC AAT GTC CGC TAC GTC CAC ATC      417
Leu Asp Asp Leu Phe Val Thr Gly Arg Asn Val Arg Tyr Val His Ile
           45                      50                      55

CCA GAT
Pro Asp
60

```

(2) INFORMATION FOR SEQ ID NO: 188:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 343 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 165..302
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 33..170
id T50032
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 291..339
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 160..208
id T50032
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 132..172
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..41
id T50032
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 71..139
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq QFILLGTTSVVTA/AL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 188:

```

AAGGTGGAGA  GTCGGGGGTC ACCAGGCCTA TCCTTGGCGC CACAGTCGGC CACCGGGGCT   60
CGCCGCCGTC  ATG GAG AGC GGA GGG CGG CCC TCG CTG TGC CAG TTC ATC   109
              Met Glu Ser Gly Gly Arg Pro Ser Leu Cys Gln Phe Ile
              -20                               -15

CTC CTG GGC ACC ACC TCT GTG GTC ACC GCC GCC CTG TAC TCC GTG TAC   157
Leu Leu Gly Thr Thr Ser Val Val Thr Ala Ala Leu Tyr Ser Val Tyr
-10              -5              1              5

```

| | |
|---|-----|
| CGG CAG AAG GCC CGG GTC TCC CAA GAG CTC AAG GGA GCT AAA AAA GTT | 205 |
| Arg Gln Lys Ala Arg Val Ser Gln Glu Leu Lys Gly Ala Lys Lys Val | |
| 10 15 20 | |
| | |
| CAT TTG GGT GAA GAT TTA AAG AGT ATT CTT TCA GAA GCT CCA GGA AAA | 253 |
| His Leu Gly Glu Asp Leu Lys Ser Ile Leu Ser Glu Ala Pro Gly Lys | |
| 25 30 35 | |
| | |
| TGC GTG CCT TAT GCT GTT ATA GAA GGA GCT GTG CGG TCT GTT AAA GAA | 301 |
| Cys Val Pro Tyr Ala Val Ile Glu Gly Ala Val Arg Ser Val Lys Glu | |
| 40 45 50 | |
| | |
| ACG CTT AAC AGC CAG TTT GTG GAA AAC TGC AAN GGG GTC CGG | 343 |
| Thr Leu Asn Ser Gln Phe Val Glu Asn Cys Xaa Gly Val Arg | |
| 55 60 65 | |

(2) INFORMATION FOR SEQ ID NO: 189:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 481 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 133..355
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 3..225
id H10707
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 353..482
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 224..353
id H10707
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 154..354
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 98..298
id H30624
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 368..403
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 314..349
id H30624
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 200..354
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 150..304
id HSC1VG011
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 111..198
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 62..149
id HSC1VG011
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 49..85
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..37
id HSC1VG011
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 202..344
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 113..255
id R34406
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 111..198
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 23..110
id R34406
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 353..482
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 115..244
id HSC23C111
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 240..355
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 94
 region 1..116
 id HSC23C111
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 56..472
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.3
 seq GILVPHSLRQAQA/SF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 189:

| | |
|--|-----|
| AAAAACTGCG GAGGGTGACA AGGAAGAAGG TGGCTCCAGA TCTGGAGGTG TGTCC ATG | 58 |
| Met | |
| GCG GCG CTT GAC CTG CGA GCG GAS TGG ATT CGC TGG TCC TGC AGC TGC | 106 |
| Ala Ala Leu Asp Leu Arg Ala Xaa Trp Ile Arg Trp Ser Cys Ser Cys | |
| -135 -130 -125 | |
| TTG GGG GAM CTG GRA GGA GCT GGA GGG GAA ACG AAC GGT GTT GAA CGC | 154 |
| Leu Gly Xaa Leu Xaa Gly Ala Gly Gly Glu Thr Asn Gly Val Glu Arg | |
| -120 -115 -110 | |
| CCG GGT GGA GGA GGG CTG GCT CTC GCT CGC CAA GGC TCG CTA CGC GAT | 202 |
| Pro Gly Gly Gly Gly Leu Ala Leu Ala Arg Gln Gly Ser Leu Arg Asp | |
| -105 -100 -95 | |
| GGG CGC CAA GTC GGT AGG GCC CCT GCA GTA TGC TTC CCA CAT GGA GCC | 250 |
| Gly Arg Gln Val Gly Arg Ala Pro Ala Val Cys Phe Pro His Gly Ala | |
| -90 -85 -80 -75 | |
| CCA GGT CTG CCT CCA CGC CAG CGA GDC YCA GGA GGG DST CCA GAA GTT | 298 |
| Pro Gly Leu Pro Pro Arg Gln Arg Xaa Xaa Gly Gly Xaa Pro Glu Val | |
| -70 -65 -60 | |
| CAA GGT GGT GAG AGC TGG TGT CCA CGC CCC AGA GGA GGT GGG GCC TCG | 346 |
| Gln Gly Gly Glu Ser Trp Cys Pro Arg Pro Arg Gly Gly Gly Ala Ser | |
| -55 -50 -45 | |
| CGA ACA GGT CTG CGG AGG CGC AAG GGC CCC ACT AAG ACC CCA GAA CCG | 394 |
| Arg Thr Gly Leu Arg Arg Arg Lys Gly Pro Thr Lys Thr Pro Glu Pro | |
| -40 -35 -30 | |
| GAG TCC TCT GAG GCC CCT CAG GAC CCC CTG AAC TGG TTT GGA ATC CTA | 442 |
| Glu Ser Ser Glu Ala Pro Gln Asp Pro Leu Asn Trp Phe Gly Ile Leu | |
| -25 -20 -15 | |
| GTT CCT CAC AGT CTA CGT CAG GCT CAA GCA AGC TTC CGG | 481 |
| Val Pro His Ser Leu Arg Gln Ala Gln Ala Ser Phe Arg | |
| -10 -5 1 | |

(2) INFORMATION FOR SEQ ID NO: 190:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 302 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 176..275
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 2..101
id R68368
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 216..278
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq WWISLLPSLLSIC/KV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 190:

```

AAGCTTTCCC CGTGGTCTGA GTTTGTGGCT GCATTTTAT CTCTGGTGGC TCTGCTACGG      60
CGGCGCAGAA ATGAGGCAGA AGCGGAAAGG AGATCTCAGC CCTGCTGAGC TGATGATGCT      120
GACTATAGGA GATGTTATTA AACAACTGAT TGAAGCCAC GAGCAGGGGA AAGACATCGA      180
TCTAAATAAG GTGAAAACCA AGACAGCTGC CAAAT ATG GCC TTT CTG CCC AGC          233
                               Met Ala Phe Leu Pro Ser
                               -20

CCC GCC TGG TGG ATA TCA TTG CTG CCG TCC CTC CTC AGT ATC TGC AAG          281
Pro Ala Trp Trp Ile Ser Leu Leu Pro Ser Leu Leu Ser Ile Cys Lys
-15                               -10                               -5                               1

GTC TTG ATG CCC AAG TTA AAG                                          302
Val Leu Met Pro Lys Leu Lys
                    5

```

(2) INFORMATION FOR SEQ ID NO: 191:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 414 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 40..271
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..232
id R00384
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 294..328
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 257..291
id R00384
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 86..130
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 140..184
id MMTEST284
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 34..180
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq PAFHLPLPGPTLA/FL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 191:

| | |
|--|-----|
| AATTCCCCAG CAAGCTCAGC GTGTAMSTGC GCT ATG GAG CCG AAA GTC GCA GAG | 54 |
| Met Glu Pro Lys Val Ala Glu | |
| -45 | |
| CTG AAG CAG AAG ATC GAG GAC ACG CTA TGT CCT TTT GGC TTC GAG GTT | 102 |
| Leu Lys Gln Lys Ile Glu Asp Thr Leu Cys Pro Phe Gly Phe Glu Val | |
| -40 -35 -30 | |
| TAC CCC TTC CAG GTG GCA TGG TAC AAT GAA CTC TTG CCT CCA GCC TTC | 150 |
| Tyr Pro Phe Gln Val Ala Trp Tyr Asn Glu Leu Leu Pro Pro Ala Phe | |
| -25 -20 -15 | |
| CAC CTA CCG CTG CCA GGA CCT ACC CTG GCC TTC CTG GTA CTC AGC ACG | 198 |
| His Leu Pro Leu Pro Gly Pro Thr Leu Ala Phe Leu Val Leu Ser Thr | |
| -10 -5 1 5 | |
| CCT GCC ATG TTT GAC CGG GCC CTC AAG CCC TTC TTG CAG AGC TGC CAC | 246 |
| Pro Ala Met Phe Asp Arg Ala Leu Lys Pro Phe Leu Gln Ser Cys His | |

| | 10 | 15 | 20 | |
|---|----|----|----|-----|
| CTC CGA ATG CTG ACT GAC CCA GTG GAC CAG TGT GTG GCC TAC CAT CTG | | | | 294 |
| Leu Arg Met Leu Thr Asp Pro Val Asp Gln Cys Val Ala Tyr His Leu | | | | |
| | 25 | 30 | 35 | |
| GGC CGT GTT AGA GAG AGC CTC CCA GAG CTG CAG ATA GAA ATC ATT GCT | | | | 342 |
| Gly Arg Val Arg Glu Ser Leu Pro Glu Leu Gln Ile Glu Ile Ile Ala | | | | |
| | 40 | 45 | 50 | |
| GRA HMA CGA GGT GCA CCC CAA CCG ACG CCC CAA GAT CCT GGC CCA GAC | | | | 390 |
| Xaa Xaa Arg Gly Ala Pro Gln Pro Thr Pro Gln Asp Pro Gly Pro Asp | | | | |
| | 55 | 60 | 65 | 70 |
| AGC AGC CAT GTA GCT GGG GCT GCT | | | | 414 |
| Ser Ser His Val Ala Gly Ala Ala | | | | |
| | 75 | | | |

(2) INFORMATION FOR SEQ ID NO: 192:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 400 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 324..389
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 301..366
id T08430
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 64..400
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 90
region 1..337
id C17891
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 301..400
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 1..100
id C04989
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 107..145
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.7
seq MLVLRSGGTKALA/SR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 192:

```

AGAGTTCGCC AGTGGTCCAG GAGCCGCTTT TTTCCACTCG GGAAGACTTC AGAGAAGTCT      60
CACAAAGGAC TCGGCTGGCT GCTTTTCTCA GTGCCGAAGC CGCGCC ATG CTC GTT      115
                                     Met Leu Val

CTC AGA AGC GGC CTG ACC AAG GCG CTT GCC TCA CGG ACG CTC GCG CCT      163
Leu Arg Ser Gly Leu Thr Lys Ala Leu Ala Ser Arg Thr Leu Ala Pro
-10                               -5                               1                               5

CAG GTG TGT TCA TCT TTT GCT ACG GGC CCT AGA CAA TAC GAT GGA ACG      211
Gln Val Cys Ser Ser Phe Ala Thr Gly Pro Arg Gln Tyr Asp Gly Thr
                               10                               15                               20

TTC TAT GAA TTT CGT ACT TAT TAC CTT AAA CCT TCA AAT ATG AAT GCG      259
Phe Tyr Glu Phe Arg Thr Tyr Tyr Leu Lys Pro Ser Asn Met Asn Ala
                               25                               30                               35

TTC ATG GAA AAT CTT AAG AAA AAC ATT CAT CTT CGG ACC TCT TAC TCT      307
Phe Met Glu Asn Leu Lys Lys Asn Ile His Leu Arg Thr Ser Tyr Ser
                               40                               45                               50

GAA TTG GTT GGA TTC TGG AGT GTA GAA TTT GGA GGC AGA ACG AAT AAA      355
Glu Leu Val Gly Phe Trp Ser Val Glu Phe Gly Gly Arg Thr Asn Lys
                               55                               60                               65                               70

GTG TTT CAT ATT TGG AAG TAT GAT AAT TTT GCT CAT CGA GCT GAA      409
Val Phe His Ile Trp Lys Tyr Asp Asn Phe Ala His Arg Ala Glu
                               75                               80                               85

```

(2) INFORMATION FOR SEQ ID NO: 193:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 186 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 112..184
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..73

id HSC09D101
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 112..184
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..73
id HSC2UE011
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 112..186
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 1..75
id HSC09C101
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 140..184
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 17..61
id T35421
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 106..174
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 10.5
seq LLFVLLLFSLIPA/CL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 193:

| | |
|---|-----|
| ATATTTAAAC GACCCTTCAA AGGCCCTTAG GTTTCCTTGC CTCTGCTCAC AGAACTAGTC | 60 |
| CAGCCAGGTG TCGCTGCTGC CTCAGAGCTG TGTGGGGTCG CRTGT ATG TCG GGG GGC | 117 |
| Met Ser Gly Gly | |
| -20 | |
| CAT CTT GCC GAT TTA ACG CTG CTT TTT GTG TTG TTG TTG TTT TCC CTC | 165 |
| His Leu Ala Asp Leu Thr Leu Leu Phe Val Leu Leu Leu Phe Ser Leu | |
| -15 -10 -5 | |
| CTC CCT GCC TGC CTA CCC CGG | 186 |
| Leu Pro Ala Cys Leu Pro Arg | |
| 1 | |

(2) INFORMATION FOR SEQ ID NO: 194:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 335 base pairs
(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(86..336)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 79..329
id AA148596
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(30..91)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 325..386
id AA148596
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(2..39)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 378..415
id AA148596
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(2..336)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 67..401
id AA074631
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(83..336)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 64..317
id AA078818
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(8..48)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 355..395
id AA078818

est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(30..336)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 64..370
 id N21054
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(68..236)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 172..340
 id AA157994
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(225..336)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 94
 region 73..184
 id AA157994
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(28..68)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 341..381
 id AA157994
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 174..326
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 10.1
 seq LLGALTLLGLVTS/FY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 194:

```

AATTCTCAAC GAGCTGCGGG CTCGGCATGC CCAGGGGGGT ACATGGTATG GAGTAGACAT   60
CAACAACGAG GACATTGCTG ACAACTTTGA AGCTTTCGTG TGGGAGCCAG CTATGGTGCG  120
GATCAATGCG CTGACAGCAG CCTCTGAGGC TGC GTGCCTG ATCGTGTCTG TAG ATG    176
                                     Met
AAA CCA TCA AGA ACC CCC GCT CGA CTG TGG ATG CTC CCA CAG CAG CAG   224
Lys Pro Ser Arg Thr Pro Ala Arg Leu Trp Met Leu Pro Gln Gln Gln
-50                      -45                      -40                      -35

GCC GGG GCC GTG GTC GTG GCC GCC CCC ACT GAG AGG CAC CCC ACC CAT   272
Ala Gly Ala Val Val Val Ala Ala Pro Thr Glu Arg His Pro Thr His

```

-30 -25 -20

CAC ATG GCT GGC TGG CTG CTG GGT GCA CTT ACC CTC CTT GGC TTG GTT 320
His Met Ala Gly Trp Leu Leu Gly Ala Leu Thr Leu Leu Gly Leu Val
 -15 -10 -5

ACT TCA TTT TAC AAG 335
Thr Ser Phe Tyr Lys
 1

(2) INFORMATION FOR SEQ ID NO: 195:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 23..200
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 9..186
id W44639
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 216..356
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 200..340
id W44639
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 363..412
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 347..396
id W44639
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 27..218
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.5
seq LSLLAALAHLAAA/EK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 195:

```

AGTGGGTCGA KCTGGGGCGC AGTCGC ATG GGG GAG TCT ATC CCG CTG GCC GCC      53
                        Met Gly Glu Ser Ile Pro Leu Ala Ala
                        -60

CCG GTC CCG GTG GAA CAG GCG GTG CTG GAG ACG TTC TTC TCT CAC CTG      101
Pro Val Pro Val Glu Gln Ala Val Leu Glu Thr Phe Phe Ser His Leu
-55                      -50                      -45                      -40

GGT ATC TTC TCT TAC GAC AAG GCT AAG GAC AAT GTG GAG AAG GAA CGA      149
Gly Ile Phe Ser Tyr Asp Lys Ala Lys Asp Asn Val Glu Lys Glu Arg
                      -35                      -30                      -25

GAG GCC AAC AAG AGC GCG GGG GGC AGC TGG CTG TCG CTG CTG GCG GCC      197
Glu Ala Asn Lys Ser Ala Gly Gly Ser Trp Leu Ser Leu Leu Ala Ala
                      -20                      -15                      -10

TTG GCG CAC CTG GCC GCG GCC GAG AAG GTC TAT CAC AGC CTC ACC TAC      245
Leu Ala His Leu Ala Ala Ala Glu Lys Val Tyr His Ser Leu Thr Tyr
                      -5                      1                      5

CTG GGG CAG AAA CTA GGG GGC CAG TCT TTC TTC AGC AGG AAG GAT TCC      293
Leu Gly Gln Lys Leu Gly Gly Gln Ser Phe Phe Ser Arg Lys Asp Ser
10                      15                      20                      25

ATC CGC ACC ATC TAT ACT TCA TTG CAT AAT GAG CTG AAG AAG GTG GTG      341
Ile Arg Thr Ile Tyr Thr Ser Leu His Asn Glu Leu Lys Lys Val Val
                      30                      35                      40

ACT GGC CGT GGT GCC DDK TNN TGG GAC TGC TCC TCA CGT GGA AGA ACT      389
Thr Gly Arg Gly Ala Xaa Xaa Trp Asp Cys Ser Ser Arg Gly Arg Thr
                      45                      50                      55

CCT TTC CCA CCT GTC AGA GCA GCA TAC GGG      419
Pro Phe Pro Pro Val Arg Ala Ala Tyr Gly
                      60                      65

```

(2) INFORMATION FOR SEQ ID NO: 196:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 33..269
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 10..246
id AA058587

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 272..307
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 248..283
id AA058587
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 133..259
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 87..213
id R12128
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 47..134
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 2..89
id R12128
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 303..337
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 257..291
id R12128
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 49..259
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 2..212
id H19999
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 272..304
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 225..257
id H19999
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 303..337
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91

region 257..291
id H19999
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 42..252
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..211
id R20025
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 87..259
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..173
id H83838
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 272..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 186..251
id H83838
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 85..198
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 9.3
seq QLLYLSLLSGLHG/QE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 196:

```

AGGCTGCGGT AAATCCGGGC TTGCGGCCGC TGGCGTAGTC TGTGGCCGGG TGGTCGTTGC      60
TGCGCGCCCC GAGCCCCGAG AGCC ATG CAG ATG TCC TAC GCC ATC CGG TGC      111
                               Met Gln Met Ser Tyr Ala Ile Arg Cys
                               -35                               -30

GCC TTC TAC CAG CTG CTG CTG GCC GCG CTC ATG CTG GTG GCG ATG CTG      159
Ala Phe Tyr Gln Leu Leu Leu Ala Ala Leu Met Leu Val Ala Met Leu
                               -25                               -20                               -15

CAG CTG CTC TAC CTG TCG CTG CTG TCC GGA CTG CAC GGG CAG GAG GAG      207
Gln Leu Leu Tyr Leu Ser Leu Leu Ser Gly Leu His Gly Gln Glu Glu
                               -10                               -5                               1

CAA GAC CAA TAT TTT GAG TTC TTT CCC CCG TCC CCA CGG TCC GTG GAC      255
Gln Asp Gln Tyr Phe Glu Phe Phe Pro Pro Ser Pro Arg Ser Val Asp
                               5                               10                               15

CAG GTC AAG GCT CAG CTC CGC ACC GCG CTG GCC TCT GGA GGC GTC CTG      303
Gln Val Lys Ala Gln Leu Arg Thr Ala Leu Ala Ser Gly Gly Val Leu

```

20

25

30

35

GAC GCT AGC GGC GAT TAC CGC GTC TAC AGG GGC CAT GGG
Asp Ala Ser Gly Asp Tyr Arg Val Tyr Arg Gly His Gly
40 45

342

(2) INFORMATION FOR SEQ ID NO: 197:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 461 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(149..337)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 182..370
id AA142966
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(340..459)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 61..180
id AA142966
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(142..337)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 183..378
id AA019334
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(340..459)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 62..181
id AA019334
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(345..459)

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 48..162
id N66447
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(255..337)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 170..252
id N66447
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(111..181)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 330..400
id N66447
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(179..228)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 282..331
id N66447
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(172..337)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 113..278
id R85770
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(340..450)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..111
id R85770
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 188..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..150
id R78830
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 339..459
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 96
 region 151..271
 id R78830
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 384..455
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 9.1
 seq LFAFHLLLSFILG/SR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 197:

```

AACACTGTTG TATAAACTAA TCTTTGCTTG TTTTCTACTC TGTGATCTTT CCATATCATA   60
TTTCATTAAT GATCAGTTAG TGTCAAGGAG TCAAAACAGA TTAAAATTAA TTTCATGTGT   120
ATATGGTGGA AATTTGTGGC TAGTGTGATT TTTGTTTGTY TCCTTTTAAG TACTGTTGAT   180
CAGTTGTGAC ACTTACTGGT TAAACTTACG TTGCTAAAGA TTTCTCTATA ATAAGCCACA   240
CATTATATTT AGACTATATT AAGGGACCTT GGTTTTCTTC TAGATAGCAG CTGTCCCAAA   300
GAAAATATTT CTTCTTTGTC TGTKAAGATT TAGCTATNKA TCTGCCAGTT GTTCAGMGGT   360
TTTGTTTCCA AACTCAACCA GCA ATG TTG AGA GCT GAA CTT AAG ATA GCT GTT   413
                               Met Leu Arg Ala Glu Leu Lys Ile Ala Val
                               -20                               -15

GTA CTT TTT GCT TTC CAT CTG TTA CTG TCC TTC ATT CTC GGC TCC CGG   461
Val Leu Phe Ala Phe His Leu Leu Leu Ser Phe Ile Leu Gly Ser Arg
-10                               -5                               1

```

(2) INFORMATION FOR SEQ ID NO: 198:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 229 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(1..130)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 8..137
 id H63707

est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 2..166
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9
seq LLILLRRTFLCSA/MI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 198:

```

A ATG AAT CAT CAA CAG ACA TTA ATT GGG CGC CTG CTC TGT GAT CTC CAT   49
  Met Asn His Gln Gln Thr Leu Ile Gly Arg Leu Leu Cys Asp Leu His
  -55                      -50                      -45                      -40

GGG CTC AGC TTG TCC CCG CCA GTW GCC AAC AAC GTC CAA GCT CTC TTC   97
Gly Leu Ser Leu Ser Pro Pro Val Ala Asn Asn Val Gln Ala Leu Phe
      -35                      -30                      -25

AGA ATG CTT ACT CCT GAA GCT TAT TCC TGT CTT CTA ATT CTT TTG TTG  145
Arg Met Leu Thr Pro Glu Ala Tyr Ser Cys Leu Leu Ile Leu Leu Leu
      -20                      -15                      -10

AGG ACT TTT CTG TGT AGT GCA ATG ATA GCA AAT ACA CTT CAT CTC AAG  193
Arg Thr Phe Leu Cys Ser Ala Met Ile Ala Asn Thr Leu His Leu Lys
      -5                      1                      5

TAC CAT CTC CAA TTG ATT GAT AAT GCC TGC CCT GAG   229
Tyr His Leu Gln Leu Ile Asp Asn Ala Cys Pro Glu
  10                      15                      20

```

(2) INFORMATION FOR SEQ ID NO: 199:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 278 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 145..279
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..135
id H06014
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 180..279
- (C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 100
region 11..110
id R15960
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 204..279
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..76
id W67034
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 27..146
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8.6
seq LFCVLGIVLLVTG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 199:

| | |
|--|-----|
| ACCAAACCAA AGCCGTCATC ATTGCA ATG ATC ATC ACT GCG GTG GTA TCC ATT | 53 |
| Met Ile Ile Thr Ala Val Val Ser Ile | |
| -40 -35 | |
| TCA GTC ACC ATC TTC TGC TTT CAG ACC AAG GTG GAC TTC ACC TCG TGC | 101 |
| Ser Val Thr Ile Phe Cys Phe Gln Thr Lys Val Asp Phe Thr Ser Cys | |
| -30 -25 -20 | |
| ACA GGC CTC TTC TGT GTC CTG GGA ATT GTG CTC CTG GTG ACT GGG ATT | 149 |
| Thr Gly Leu Phe Cys Val Leu Gly Ile Val Leu Leu Val Thr Gly Ile | |
| -15 -10 -5 1 | |
| GTC ACT AGC ATT GTG CTC TAC TTC CAA TAC GTT TAC TGG CTC CAC ATG | 197 |
| Val Thr Ser Ile Val Leu Tyr Phe Gln Tyr Val Tyr Trp Leu His Met | |
| 5 10 15 | |
| CTC TAT GCT GCT CTG GGG GCC ATT TGT TTC ACC CTG TTC CTG GCT TAC | 245 |
| Leu Tyr Ala Ala Leu Gly Ala Ile Cys Phe Thr Leu Phe Leu Ala Tyr | |
| 20 25 30 | |
| GAC ACA CAG CTG GTC CTG GGG AAC CGG AAG CAC | 278 |
| Asp Thr Gln Leu Val Leu Gly Asn Arg Lys His | |
| 35 40 | |

(2) INFORMATION FOR SEQ ID NO: 200:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 333 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 55..268
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 32..245
id T60555
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 22..51
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 1..30
id T60555
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 67..261
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8.4
seq LLWFIHLVFFVLX/LF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 200:

```

AAGAGGCTTA CGAGSWCCAG GTGGAGAGGC CGGGCTGGCC AAGGCTTCGG CCTCCGGCGT      60
CGGGAA ATG GCG GCG GGG GGC AGG ATG GAG GAC GGT TCC TTG GAT ATC      108
  Met Ala Ala Gly Gly Arg Met Glu Asp Gly Ser Leu Asp Ile
    -65                -60                -55

ACC CAG AGT ATT GAA GAC GAC CCA CTT CTG GAT GCC CAG CTT CTC CCA      156
Thr Gln Ser Ile Glu Asp Asp Pro Leu Leu Asp Ala Gln Leu Leu Pro
    -50                -45                -40

CAC CAC TCA TTA CAA GCT CAC TTT AGA CCC CGA TTC CAT CCT CTT CCT      204
His His Ser Leu Gln Ala His Phe Arg Pro Arg Phe His Pro Leu Pro
    -35                -30                -25                -20

ACA GTC ATC ATA GTG AAT CTT CTG TGG TTT ATT CAT CTC GTG TTT GTT      252
Thr Val Ile Ile Val Asn Leu Leu Trp Phe Ile His Leu Val Phe Val
          -15                -10                -5

GTW TTA GSA TTG TTT AAC AGG TGT GCT TTG TTC TWA TCC TAT CCC AAA      300
Val Leu Xaa Leu Phe Asn Arg Cys Ala Leu Phe Xaa Ser Tyr Pro Lys
          1                5                10

TGG GAC ARG TGC CCA GGA AAT TAC ACA AAC CCA      333
Trp Asp Xaa Cys Pro Gly Asn Tyr Thr Asn Pro
    15                20

```

(2) INFORMATION FOR SEQ ID NO: 201:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 337 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 125..306
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 95..276
id H31193
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 69..130
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 40..101
id H31193
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 29..68
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..40
id H31193
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 161..208
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.5
seq GCMLLEFVFGFVGG/AV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 201:

```

AATCGCTTGG GAGCTGCTGC AGGATGGAGT GGAAAGCTGC TGCTGATGGC ATTGTTTTTG      60
TGGCAGCAAG CTGAATGACA GATCCTCACT ACAAAGATAC CCCTTTGGCC CCCGTGTAGG      120
CCTCCTTGGT TCGGGTGTTT CACCATGCCA GCACAGCGCC ATG AGT CCT GGA TGC          175
                               Met Ser Pro Gly Cys
                               -15

ATG CTG CTG TTT GTG TTT GGC TTT GTT GGC GGG GCG GTG GTC ATT AAT          223
Met Leu Leu Phe Val Phe Gly Phe Val Gly Gly Ala Val Val Ile Asn
-10                -5                1                5

```

| | |
|---|-----|
| TCT GCT ATC TTA GTA TCT CTC TCT GTT TTG CTG CTT GTG CAC TTT TCT | 271 |
| Ser Ala Ile Leu Val Ser Leu Ser Val Leu Leu Leu Val His Phe Ser | |
| 10 15 20 | |
| ATT TCT ACC GGT GTG CCA GCT CTG ACG CAG AAC CTA CCA AGG ATA CTC | 319 |
| Ile Ser Thr Gly Val Pro Ala Leu Thr Gln Asn Leu Pro Arg Ile Leu | |
| 25 30 35 | |
| AGA AAA GAA CGC CCC GGG | 337 |
| Arg Lys Glu Arg Pro Gly | |
| 40 | |

(2) INFORMATION FOR SEQ ID NO: 202:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 309 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 105..252
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 136..283
id HSU46355
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 53..83
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 90
region 82..112
id HSU46355
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 227..276
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 206..255
id AA011705
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 109..153
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.5
seq LLLGIALLAYVAS/VW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 202:

```

AATBGTGCAG CAGGCGGGCC CCCGCGCGGC AGGGSCCTGG ACCCGCGCGG CTCCCTGGGA      60
TGGTGAGCAA GGCGCTGCTG CSCTCGTGTC TGCCGTCAAC CGCAGASG ATG AAG CTG      117
                                         Met Lys Leu
                                         -15
CTG CTG GGC ATC GCC TTG CTG GCC TAC GTC GCC TCT GTT TGG GGC AAC      165
Leu Leu Gly Ile Ala Leu Leu Ala Tyr Val Ala Ser Val Trp Gly Asn
      -10                      -5                      1
TTC GTT AAT ATG AGG TCT ATC CAG GAA AAT GGT GAA CTA AAA ATT GAA      213
Phe Val Asn Met Arg Ser Ile Gln Glu Asn Gly Glu Leu Lys Ile Glu
      5                      10                      15                      20
AGC AAG ATT GAA GAG ATG GTT GAA CCA CTA AGA GAG AAA ATC AGA GAT      261
Ser Lys Ile Glu Glu Met Val Glu Pro Leu Arg Glu Lys Ile Arg Asp
                      25                      30                      35
TTA GRA AAA AGC TTT ACC CAG AAA TAC CCA CCA GTA AAG TTT TTA TCA      309
Leu Xaa Lys Ser Phe Thr Gln Lys Tyr Pro Pro Val Lys Phe Leu Ser
                      40                      45                      50

```

(2) INFORMATION FOR SEQ ID NO: 203:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 491 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 132..251
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 170..289
id T60981
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 19..126
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 57..164
id T60981
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 39..107
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.5
 seq LVLLLTLPPLHLMA/LL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 203:

```

AAGTGCCCCA GCGGAAGACA GCTCAGAGCT GGTCTGCC ATG GAC ATC CTG GTC CCA      56
                                   Met Asp Ile Leu Val Pro
                                   -20

CTC CTG CAG CTG CTG GTG CTG CTT CTT ACC CTG CCC CTG CAC CTC ATG      104
Leu Leu Gln Leu Leu Val Leu Leu Leu Thr Leu Pro Leu His Leu Met
      -15                               -10                               -5

GCT CTG CTG GGC TGC TGG CAG CCC CTG TGC AAA AGC TAC TTC CCC TAC      152
Ala Leu Leu Gly Cys Trp Gln Pro Leu Cys Lys Ser Tyr Phe Pro Tyr
      1                               5                               10           15

CTG ATG GCC GTG CTG ACT CCC AAG AGC AAC CGC AAG ATG GAG AGC AAG      200
Leu Met Ala Val Leu Thr Pro Lys Ser Asn Arg Lys Met Glu Ser Lys
      20                               25                               30

AAA CGG GAG CTC TTC AGC CAG ATA AAG GGG CTT ACA GGA GCC TCC GGG      248
Lys Arg Glu Leu Phe Ser Gln Ile Lys Gly Leu Thr Gly Ala Ser Gly
      35                               40                               45

AAA GTG GCC CTA CTG GAG CTG GGC TGC GGA ACC GGA GCC AAC TTT CAG      296
Lys Val Ala Leu Leu Glu Leu Gly Cys Gly Thr Gly Ala Asn Phe Gln
      50                               55                               60

TTC TAC CCA CCG GGC TGC AGG GTC ACC TGC CTA GAC CCA AAT CCC CAC      344
Phe Tyr Pro Pro Gly Cys Arg Val Thr Cys Leu Asp Pro Asn Pro His
      65                               70                               75

TTT GAG AAG TTC CTG ACA AAG AGC ATG GCT GAG AAC AGG CAC CTC CAA      392
Phe Glu Lys Phe Leu Thr Lys Ser Met Ala Glu Asn Arg His Leu Gln
      80                               85                               90           95

TAT GAG CGG TTT GTG GTG GCT CCT GGA GAG GAC ATG AGA MAG CTG GCT      440
Tyr Glu Arg Phe Val Val Ala Pro Gly Glu Asp Met Arg Xaa Leu Ala
      100                               105                               110

GAT GGC TCC ATG GAT GTK GTG GTC TGC ACT CTG GTG CTG TGC TCT GTG      488
Asp Gly Ser Met Asp Val Val Val Cys Thr Leu Val Leu Cys Ser Val
      115                               120                               125

CAG
Gln
      491
  
```

(2) INFORMATION FOR SEQ ID NO: 204:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 331 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 25..303
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 1..279
 id HSCOZA041
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 131..286
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 106..261
 id R12615
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 71..133
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 47..109
 id R12615
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 88..303
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 1..216
 id HUM401H04B
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 137..303
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 92..258
 id T78771
 est

(ix) FEATURE:
 (A) NAME/KEY: sig_peptide
 (B) LOCATION: 23..127
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.4
 seq SLLLSLELASGSG/QG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 204:

```

AAAGGGCGGA STTCAGGTCT CC ATG GAG GCG GCT TCT CCT AGC AAC TCG ACG      52
                      Met Glu Ala Ala Ser Pro Ser Asn Ser Thr
                      -35                      -30

GGC GTT GAG CGG ASC GCT GAC CTG ATG GAC GCC GAC AGC CTC CTG CTG      100
Gly Val Glu Arg Xaa Ala Asp Leu Met Asp Ala Asp Ser Leu Leu Leu
-25                      -20                      -15                      -10

TCT CTG GAG CTG GCG TCC GGC AGT GGG CAG GGC CTC AGC CCG GAC CGT      148
Ser Leu Glu Leu Ala Ser Gly Ser Gly Gln Gly Leu Ser Pro Asp Arg
                      -5                      1                      5

CGG GCC TCG CTG CTC ACG TCT CTT ATG CTG GTT AAG CGC GAC TAC CGC      196
Arg Ala Ser Leu Leu Thr Ser Leu Met Leu Val Lys Arg Asp Tyr Arg
                      10                      15                      20

TAT GAT CGG GTT CTC TTC TGG GGC CGC ATC CTT GGC CTC GTC GCC GAT      244
Tyr Asp Arg Val Leu Phe Trp Gly Arg Ile Leu Gly Leu Val Ala Asp
                      25                      30                      35

TAC TAC ATC GCG CAG GGC CTG AGT GAG GAC CAG CTC GCA CCG CGC AAG      292
Tyr Tyr Ile Ala Gln Gly Leu Ser Glu Asp Gln Leu Ala Pro Arg Lys
                      40                      45                      50                      55

ACG CTC TAT AGG TCC AGA TCA AGG AAG AGA CCC GCA CTG      331
Thr Leu Tyr Arg Ser Arg Ser Arg Lys Arg Pro Ala Leu
                      60                      65

```

(2) INFORMATION FOR SEQ ID NO: 205:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 317 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 46..119
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 12..85
id N80892
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 88..119
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..32
id H92328

est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 108..236
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4
seq VLVKLLSSSASTS/RP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 205:

```

AGTTTCGNST CGCGGATCCG GTAGGTCCAG GTGCAGCGGC CGCAGTKCTG CGTCCGTGCG      60
CCGCGGGGCTG GGGCGGTCTC AGGTGTGCCG AAGCTCTGGT CAGTGCC ATG ATC CGG      116
                                     Met Ile Arg
CAG GAG CGC TCC ACA TCC TAC CAG GAG GCT GTG CGT CCA GCG CTT CCT      164
Gln Glu Arg Ser Thr Ser Tyr Gln Glu Ala Val Arg Pro Ala Leu Pro
-40                               -35                -30                -25
TCA AGC AAG CCC TGC CTC CTC ACT TCT CCA GCT GTA TTA GTG AAA CTG      212
Ser Ser Lys Pro Cys Leu Leu Thr Ser Pro Ala Val Leu Val Lys Leu
                               -20                -15                -10
CTC TCC TCC TCC GCC TCC ACT TCT CGG CCC CCA GAC CTT GGT CAT CTT      260
Leu Ser Ser Ser Ala Ser Thr Ser Arg Pro Pro Asp Leu Gly His Leu
                               -5                1                5
TGG CAA CCG TCC TCT TCT GTG CCC CTC CAT CGG CCG CCA CAC ACT GCA      308
Trp Gln Pro Ser Ser Ser Val Pro Leu His Arg Pro Pro His Thr Ala
    10                15                20
CCA CCA GCG
Pro Pro Ala
    25

```

317

(2) INFORMATION FOR SEQ ID NO: 206:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 363 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 26..365
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..340
id N40260
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 17..308
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 6..297
id W07706
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 311..349
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 301..339
id W07706
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 79..365
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 22..308
id W37568
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 140..326
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 74..260
id W00732
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 328..365
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 263..300
id W00732
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 79..362
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 14..297
id AA135041
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 25..147
(C) IDENTIFICATION METHOD: Vcn Heijne matrix
(D) OTHER INFORMATION: score 7.4
seq ILPLLFGCLGVFG/LF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 206:

| | | | | | | | | | | | | | | | | |
|---------|-----|---------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ACACGTC | ACT | TCCGAGG | CGG | GAGG | ATG | AAG | TTG | ATT | GAC | TAT | GGT | CTC | TCC | 51 | | |
| | | | | | Met | Lys | Leu | Ile | Asp | Tyr | Gly | Leu | Ser | | | |
| | | | | | -40 | | | | | | -35 | | | | | |
| GGC | TAC | CAG | GAA | GAG | TCT | GCC | GAA | GTG | AAG | GCC | ATG | GAC | TTC | ATC | ACC | 99 |
| Gly | Tyr | Gln | Glu | Glu | Ser | Ala | Glu | Val | Lys | Ala | Met | Asp | Phe | Ile | Thr | |
| | | -30 | | | | -25 | | | | | -20 | | | | | |
| TCC | ACA | GCC | ATC | CTG | CCC | CTG | CTG | TTC | GGC | TGC | CTG | GGC | GTC | TTC | GGC | 147 |
| Ser | Thr | Ala | Ile | Leu | Pro | Leu | Leu | Phe | Gly | Cys | Leu | Gly | Val | Phe | Gly | |
| | | -15 | | | -10 | | | | -5 | | | | | | | |
| CTC | TTC | CGG | CTG | CTG | CAG | TGG | GTG | CGC | GGG | AAG | GCC | TAC | CTG | CGG | AAT | 195 |
| Leu | Phe | Arg | Leu | Leu | Gln | Trp | Val | Arg | Gly | Lys | Ala | Tyr | Leu | Arg | Asn | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| GCT | GTG | GTG | GTG | ATC | ACA | GGC | GCC | ACC | TCA | GGG | CTG | GGC | AAA | GAA | TGT | 243 |
| Ala | Val | Val | Val | Ile | Thr | Gly | Ala | Thr | Ser | Gly | Leu | Gly | Lys | Glu | Cys | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| GCA | AAA | GTC | TTC | TAT | GCT | RMG | GGT | GCT | AAA | CTG | GTG | CTC | TGT | GAR | MCG | 291 |
| Ala | Lys | Val | Phe | Tyr | Ala | Xaa | Gly | Ala | Lys | Leu | Val | Leu | Cys | Glu | Xaa | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| GAA | TGG | TGG | GGC | CTA | GAA | GAG | CTC | ATC | AGA | GAA | CTC | ACC | GCT | TCT | CAT | 339 |
| Glu | Trp | Trp | Gly | Leu | Glu | Glu | Leu | Ile | Arg | Glu | Leu | Thr | Ala | Ser | His | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| GCC | ACC | AAG | GTG | CAG | ACA | CAC | AAG | | | | | | | | | 363 |
| Ala | Thr | Lys | Val | Gln | Thr | His | Lys | | | | | | | | | |
| | 65 | | | | | 70 | | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 207:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 235 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: _other
- (B) LOCATION: 60..181
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..122
id AA057454
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 182..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 122..173
id AA057454
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 71..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..163
id C18312
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 182..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 144..195
id W69247
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 98..144
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 62..108
id W69247
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 34..78
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..45
id W69247
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 146..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 69..156
id H75891
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 76..144
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 1..69
id H75891

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 80..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..154
id HUML11265
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 104..160
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4
seq PMLLRALAQAARA/GP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 207:

```
ATAAGGGGGA ACCCGCTGGC CCAATGGCAG CGTCCTACAG TGTAGCCTCC GCCTCCCGAT      60
TGACTGGCCT GCTTGGCAAK GCAAGTAGCG GCGGCGCTTC AAG ATG CGC TGC CTG      115
                               Met Arg Cys Leu
ACC ACG CCT ATG CTG CTG CGG GCC CTG GCC CAG GCT GCA CGT GCA GGA      163
Thr Thr Pro Met Leu Leu Arg Ala Leu Ala Gln Ala Ala Arg Ala Gly
-15                               -10                               -5                               1
CCT CCT GGT GGC CGG AGC CTC CAC AGC AGT GCA GTG GCA GCC ACC TAC      211
Pro Pro Gly Gly Arg Ser Leu His Ser Ser Ala Val Ala Ala Thr Tyr
                               5                               10                               15
AAG TAT GTG AAC ATG CAG GAT CAA                                          235
Lys Tyr Val Asn Met Gln Asp Gln
                               20                               25
```

(2) INFORMATION FOR SEQ ID NO: 208:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 385 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 70..351
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 34..315
id T19063

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 36..68
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..33
id T19063
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 61..353
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..293
id T32338
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 93..360
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..268
id T30463
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(107..265)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 330..488
id W27204
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(257..385)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 209..337
id W27204
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 70..324
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 27..281
id T32187
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 134..334
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7

seq IWTLLSSVIRCLC/AI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 208:

```

AGACAAATGG CTCAGGTGGA CTCCGGGCTG GAGCTGTCCT GGGGGAGCTT GTTTGCGGCA    60
SGGCTGCTGC TGCCACTGCT GTGCTGSGG CCCGGTCGCC AGGCAAAAAG CCCTCCCACG    120
TTTGAGGGGA GTC ATG AGC CGT TTC CTG AAT GTG TTA AGA AGT TGG CTG    169
      Met Ser Arg Phe Leu Asn Val Leu Arg Ser Trp Leu
      -65                               -60

GTT ATG GTG TCC ATC ATA GCC ATG GGG AAC ACG CTG CAG AGC TTC CGA    217
Val Met Val Ser Ile Ile Ala Met Gly Asn Thr Leu Gln Ser Phe Arg
-55                               -50                               -45                               -40

GAC CAC ACT TTT CTC TAT GAA AAG CTC TAC ACT GGC AAG CCA AAC CTT    265
Asp His Thr Phe Leu Tyr Glu Lys Leu Tyr Thr Gly Lys Pro Asn Leu
      -35                               -30                               -25

GTG AAT GGC CTC CAA GCT CGG ACC TTT GGG ATC TGG ACG CTG CTC TCA    313
Val Asn Gly Leu Gln Ala Arg Thr Phe Gly Ile Trp Thr Leu Leu Ser
      -20                               -15                               -10

TCA GTG ATT CGC TGC CTC TGT GCC ATT GAC ATT CAC AAC AAG ACG CTC    361
Ser Val Ile Arg Cys Leu Cys Ala Ile Asp Ile His Asn Lys Thr Leu
      -5                               1                               5

TAT CAC ATC ACA CTC TGG ACC TTC    385
Tyr His Ile Thr Leu Trp Thr Phe
10                               15

```

(2) INFORMATION FOR SEQ ID NO: 209:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 285 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..55)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 34..87
id T86932
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(45..86)

(C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 2..43
 id T86932
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 199..240
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 6.8
 seq IFLTSLDSRVSA/IR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 209:

```

AAATAAAAT ATCTTAAAC TGCATTGTAC AGCTCCCTCC CTGCGTTTTA TTAAATGATG    60
TATATTAAAC AAAGATCAAT ATTTTCTTAA TGACTCAGGG TCTTTATTGT TAATGCCAAT   120
TGTTTTTGTA TCTGTGCTAT AATCCCTTAG AGTCAGTAAA GTATGTAGGG GACTGTTTCT   180
TCCTTTGTGT CTGGGTTT ATG ATT TTT CTC ACT CTT TCT TTG GAC TCC AGG     231
              Met Ile Phe Leu Thr Leu Ser Leu Asp Ser Arg
              -10                               -5

GTG TCA GCC ATC AGG TCT CCT AAT TTT GTG TAC CGG TCT CCA ACA DMC     279
Val Ser Ala Ile Arg Ser Pro Asn Phe Val Tyr Arg Ser Pro Thr Xaa
              1                               5                               10

CAT GGG                                                                285
His Gly
  15
  
```

(2) INFORMATION FOR SEQ ID NO: 210:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 378 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 65..270
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 109..314
 id AA100852
 est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 269..378
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 314..423
id AA100852
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 65..270
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 109..314
id AA161042
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 277..361
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 323..407
id AA161042
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 65..274
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 104..313
id H64488
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 68..256
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 147..335
id AA146605
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 256..317
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 336..397
id AA146605
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 80..305
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 129..354
id AA088770
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 76..162
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.8
seq LIFLCGAALLXVG/IW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 210:

```

AATACTACAC ACTCATATAG GGGAGGGAGG CTTCTGGGTC CCAGGGCCGC AGGGGCAKKG      60
AAGTCTGGAG CCWYC ATG CAG TGC TTC AGC TTC ATT AAG ACC ATG ATG ATC      111
      Met Gln Cys Phe Ser Phe Ile Lys Thr Met Met Ile
                        -25                      -20

CTC TTC AAT TTG CTC ATC TTT CTG TGT GGT GCA GCC CTG TTR RCA GTG      159
Leu Phe Asn Leu Leu Ile Phe Leu Cys Gly Ala Ala Leu Leu Xaa Val
      -15                      -10                      -5

GGC ATC TGG GTG TCA ATC GAT GGG GCA TCC TTT CTG AAG ATC TTC GGG      207
Gly Ile Trp Val Ser Ile Asp Gly Ala Ser Phe Leu Lys Ile Phe Gly
      1                      5                      10                      15

CCA CTG TCG TCC AGT GCC ATG CAG TTT GTC AAC GTG GGC TAC TTC CTC      255
Pro Leu Ser Ser Ser Ala Met Gln Phe Val Asn Val Gly Tyr Phe Leu
                        20                      25                      30

ATC GCA GCC GGC GTT GTG GTC TTT GCT CTY GGT TTC CTG GGC TGC TAT      303
Ile Ala Ala Gly Val Val Val Phe Ala Leu Gly Phe Leu Gly Cys Tyr
      35                      40                      45

SGT GCT AAG ACT GAG AGC WAG TGT GCC CTC GTG ACG TTC TTC TKC ATC      351
Xaa Ala Lys Thr Glu Ser Xaa Cys Ala Leu Val Thr Phe Phe Xaa Ile
      50                      55                      60

CTC CTS CTC ATC TTC ATT GCT GAC GTT      378
Leu Leu Leu Ile Phe Ile Ala Asp Val
      65                      70

```

(2) INFORMATION FOR SEQ ID NO: 211:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 327 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 234..288
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96

region 203..257
id R25833
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 285..317
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 255..287
id R25833
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 37..141
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.4
seq SACLLLCPTWTNP/QL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 211:

| | |
|---|-----|
| AAAAAAGGCG GGGTCTCGGC CGGCGCTGAC GCAGCC ATG GCG GAG GCG GCT TTG | 54 |
| Met Ala Glu Ala Ala Leu | |
| -35 -30 | |
| GAA GCC GTG CGG ASG AGT TAC GAG AAT TCC CGG CCG CTG CAA GGG AGC | 102 |
| Glu Ala Val Arg Xaa Ser Tyr Glu Asn Ser Arg Pro Leu Gln Gly Ser | |
| -25 -20 -15 | |
| TCT GCG TGC CTC TTG CTG TGC CCT ACC TGG ACA AAC CCC CAA CTC CGC | 150 |
| Ser Ala Cys Leu Leu Leu Cys Pro Thr Trp Thr Asn Pro Gln Leu Arg | |
| -10 -5 1 | |
| TCC ACT TCT ACC GGG ACT GGG TCT GCC CCA ACA GGC CGT GCA TTA TCC | 198 |
| Ser Thr Ser Thr Gly Thr Gly Ser Ala Pro Thr Gly Arg Ala Leu Ser | |
| 5 10 15 | |
| GCA ACG CTC TGC AGC ACT GGC CGG CCC TCC ANC DKK TGG TCC CTC CCC | 246 |
| Ala Thr Leu Cys Ser Thr Gly Arg Pro Ser Xaa Xaa Trp Ser Leu Pro | |
| 20 25 30 35 | |
| TAT TTC AGA GCC ACA GTG GGC TCC ACA GAG GTG AGT GTG GCC GTG ACC | 294 |
| Tyr Phe Arg Ala Thr Val Gly Ser Thr Glu Val Ser Val Ala Val Thr | |
| 40 45 50 | |
| CCA GAT GGT TAC GCG GAT GCC GTD AGA NGG GAT | 327 |
| Pro Asp Gly Tyr Ala Asp Ala Val Arg Xaa Asp | |
| 55 60 | |

(2) INFORMATION FOR SEQ ID NO: 212:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 244 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 82..241

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 99
region 51..210
id C18780
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 48..83

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 94
region 18..53
id C18780
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 163..235

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 97
region 121..193
id T11911
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 116..162

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 95
region 73..119
id T11911
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 204..239

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 94
region 226..261
id T69629
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: 143..199

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 6.4
seq SVFLLMVNGQVES/AQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 212:

```
AGCACTCGCG TGGCCTTCGC GAAGGTGTCG CTGCCAAGAA ACGTGTCCCTG CGCGCTACGC      60
CGTCTGTTTT TAGGGCAACG CCGGCGTCTC TTAGCAACCG CGCGCGGCCT AGGTGGGTCC      120
CCCCGGCACC CCCAGACCTG CC ATG GCG ACC GCG AGT CCT AGC GTC TTT CTA      172
                        Met Ala Thr Ala Ser Pro Ser Val Phe Leu
                        -15                               -10

CTC ATG GTC AAC GGG CAG GTG GAG AGC GCC CAG TTT CCA GAG TAT GAT      220
Leu Met Val Asn Gly Gln Val Glu Ser Ala Gln Phe Pro Glu Tyr Asp
                        -5                               1                               5

GAC CTC TAC TGC AAG TAC TGC CAG      244
Asp Leu Tyr Cys Lys Tyr Cys Gln
      10                               15
```

(2) INFORMATION FOR SEQ ID NO: 213:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 211 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 95..208
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 85..198
id N43024
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 28..95
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 17..84
id N43024
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 107..199
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 80..172
id T62095
est

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: 61..106
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 35..80
id T62095
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 26..60
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..35
id T62095
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 61..208
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 26..173
id W42796
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..208
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 114..212
id AA030227
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 110..208
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 51..149
id AA118270
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 104..187
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6
seq IGLMFLMLGCALP/IY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 213:

```
TCTTCCGGGT GTTGTCTGGC CGCCGTAGCG CRTCTTGGGT CTCCCGGCTG CCGCTGCTGC    60
CGCCGCCGCC TCGGGTCGTG GAGCCAGSAG CGACGTCACC GCC ATG GCA GGC ATC    115
                                     Met Ala Gly Ile
                                     -25
AAA GGT TTG ATT AGT TGG TCC TTT GGA GGA GCA ATC GGA CTG ATG TTT    163
Lys Ala Leu Ile Ser Leu Ser Phe Gly Gly Ala Ile Gly Leu Met Phe
```

-20

-15

-10

TTG ATG CTT GGA TGT GCC CTT CCA ATA TAC AAC AAA TAC TGG CCC TGG 211
Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys Tyr Trp Pro Trp
-5 1 5

(2) INFORMATION FOR SEQ ID NO: 214:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 128 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 3..124
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 8..129
id AA146587
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 2..124
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 14..136
id T85006
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 11..124
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..114
id H08511
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 14..124
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..111
id C00740
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 13..124

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..112
id N40664
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 12..62
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.9
seq ILLFGTLLMNAGA/VL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 214:

```
AGGCCGTAAC G ATG ATC GGA GAC ATC CTG CTG TTC GGG ACG TTG CTG ATG      50
              Met Ile Gly Asp Ile Leu Leu Phe Gly Thr Leu Leu Met
              -15                               -10                      -5

AAT GCC GGG GCG GTG CTG AAC TTT AAG CTG AAA AAG AAG GAC ACG CAG      98
Asn Ala Gly Ala Val Leu Asn Phe Lys Leu Lys Lys Lys Asp Thr Gln
              1                               5                      10

GGC TTT GGG GAG GAG TCC AGG GAG CCT TGG                               128
Gly Phe Gly Glu Glu Ser Arg Glu Pro Trp
              15                               20
```

(2) INFORMATION FOR SEQ ID NO: 215:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 150 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 12..143
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 36..167
id HUM137D01B
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 12..142
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 143..273
id AA155928
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 12..141
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 115..244
id W39572
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(12..135)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 1..124
id M78698
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(32..151)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 346..465
id H99266
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 67..114
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.9
seq MILTLSLFGSCIS/NF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 215:

```
ACACATCCCT CTAACTACT GTTAGGAACA GCAGTGTCT CACAGTGTG GGCAGCCGTC      60
CTTCTA ATG AAG ACA ATG ATA TTG ACA CTG TCC CTC TTT GGC AGT TGC      108
  Met Lys Thr Met Ile Leu Thr Leu Ser Leu Phe Gly Ser Cys
    -15                -10                -5

ATT AGT AAC TTT GAA AGG TAT ATG ACT GAG CGT AGC ATC CAG      150
Ile Ser Asn Phe Glu Arg Tyr Met Thr Glu Arg Ser Ile Gln
   1                5                10
```

(2) INFORMATION FOR SEQ ID NO: 216:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 397 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(223..398)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 96
region 111..286
id HSGT545
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(69..219)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 92
region 291..441
id HSGT545
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(2..43)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 97
region 467..508
id HSGT545
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(223..311)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 92
region 4..92
id AA036134
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(46..163)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 91
region 133..250
id AA038839
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(223..295)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 97
region 1..73
id AA038839
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 326..387

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 91
region 2..63
id W51392
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 152..268
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.9
seq SVSVLSSLGIVLA/VV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 216:

```

ACTTTGAGGG TGTCTCTGGC CATGTGGTGT TTGATGCCAG CBGCTCTCGG ATGGCATGGA    60
CGCTTATCGA GCAGCTTCAG GGTGGCAGCT ACAAGAAGAT TGGCTACTAT GACAGCACCA    120
AGGATGATCT TTCCTGGTCC AAAACAGATA A ATG GAT TGG AGG GTC CCC CCC    172
                               Met Asp Trp Arg Val Pro Pro
                               -35

AGC TGR SCA GAC CCT GGT CAT CAA GAC ATT CCG CTT CCT GTC ACA GAN    220
Ser Xaa Xaa Asp Pro Gly His Gln Asp Ile Pro Leu Pro Val Thr Xaa
   -30                               -25                               -20

NNC TTT ATC TCC GTC TCA GTT CTC TCC AGC CTG GGC ATT GTC CTA GCT    268
Xaa Phe Ile Ser Val Ser Val Leu Ser Ser Leu Gly Ile Val Leu Ala
   -15                               -10                               -5

GTT GTC TGT CTG TCC TTT AAC ATC TAC AAC TCA CAT GTC CGT TAT ATC    316
Val Val Cys Leu Ser Phe Asn Ile Tyr Asn Ser His Val Arg Tyr Ile
   1                               5                               10                               15

CAG AAC TCA CAG CCC AAC CTG AAC AAC CTG ACT GCT GTG GGC TGC TCA    364
Gln Asn Ser Gln Pro Asn Leu Asn Asn Leu Thr Ala Val Gly Cys Ser
                20                25                30

MTG GCT TTA GCT GCT GTC TTC CCC TGG GGC TCG    397
Xaa Ala Leu Ala Ala Val Phe Pro Trp Gly Ser
   35                40

```

(2) INFORMATION FOR SEQ ID NO: 217:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 373 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 41..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..297
id H56523
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 38..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..300
id AA020823
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 43..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 7..301
id H99096
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 49..315
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 11..277
id AA083141
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 52..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 17..302
id N21197
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 35..82
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.8
seq AALPAWLSLQSR/RT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 217:

AGCTTGTCCTCCTCGGCTTG CCGTCCTCGC AGCC ATG GCG GCC GCC GCG CTC CCA 55
Met Ala Ala Ala Ala Leu Pro
-15 -10

GCA TGG CTG TCT CTG CAG TCG AGG GCA AGG ACT CTG CGT GCA TTC TCC 103
Ala Trp Leu Ser Leu Gln Ser Arg Ala Arg Thr Leu Arg Ala Phe Ser
-5 1 5

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ACT | GCC | GTC | TAC | TCG | GCC | ACT | CCG | GTC | CCG | ASA | CCT | AGC | CTG | CCG | GAA | 151 |
| Thr | Ala | Val | Tyr | Ser | Ala | Thr | Pro | Val | Pro | Xaa | Pro | Ser | Leu | Pro | Glu | |
| | | 10 | | | | | | 15 | | | | | 20 | | | |
| | | | | | | | | | | | | | | | | |
| AGA | ACA | CCC | GGA | AAT | GAA | AGG | CCA | CCA | AGA | AGA | AAG | GCA | CTA | CCT | CCT | 199 |
| Arg | Thr | Pro | Gly | Asn | Glu | Arg | Pro | Pro | Arg | Arg | Lys | Ala | Leu | Pro | Pro | |
| | | 25 | | | | 30 | | | | | 35 | | | | | |
| | | | | | | | | | | | | | | | | |
| AGG | ACA | GAG | AAA | ATG | GCT | GTT | GAC | CAG | GAC | TGG | CCT | AKT | GTT | TAC | CCA | 247 |
| Arg | Thr | Glu | Lys | Met | Ala | Val | Asp | Gln | Asp | Trp | Pro | Xaa | Val | Tyr | Pro | |
| | | 40 | | | | 45 | | | | 50 | | | | | 55 | |
| | | | | | | | | | | | | | | | | |
| GTT | GCA | GCA | CCA | TTT | AAA | CCC | TCT | GCA | GTA | CCT | CTT | CCT | GTT | CGA | ATG | 295 |
| Val | Ala | Ala | Pro | Phe | Lys | Pro | Ser | Ala | Val | Pro | Leu | Pro | Val | Arg | Met | |
| | | | | 60 | | | | | 65 | | | | | 70 | | |
| | | | | | | | | | | | | | | | | |
| GGT | TAT | CCA | GTA | AAA | AAG | GGC | GTS | CCA | TGG | SAA | AGG | AGG | GAA | TCT | AKG | 343 |
| Gly | Tyr | Pro | Val | Lys | Lys | Gly | Val | Pro | Trp | Xaa | Arg | Arg | Glu | Ser | Xaa | |
| | | | 75 | | | | | 80 | | | | | 85 | | | |
| | | | | | | | | | | | | | | | | |
| ACT | TTT | AAA | GAT | TCC | AAT | TTT | CTG | CAT | TTG | | | | | | | 373 |
| Thr | Phe | Lys | Asp | Ser | Asn | Phe | Leu | His | Leu | | | | | | | |
| | | 90 | | | | | 95 | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 218:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 333 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 32..331
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..300
id R13004
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 114..274
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 54..214
id T80337
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 272..331

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 213..272
id T80337
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 66..106
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 6..46
id T80337
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 101..278
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 70..247
id T08840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 33..113
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..81
id T08840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 101..249
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 72..220
id HSCOCF041
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 31..112
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..82
id HSCOCF041
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 247..321
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.8
seq LWISACAMLLCHG/SL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 218:

AAGCTAGGAC ATTCTTCTCC TCCTGGCCCT GGACATCAGA ACCCCAGGCT CTCCAGCCTT 60
TGGACTTCAG GACTGACACA AGCAACCTGC TGGGTTCTTA GGCCTTTGGC TTGTACTGAG 120
ACTTACACCA TCAGCTTCCC TGGTCCTGAG ACTTTTGGAC TTGGATTGAG CCACGCTACT 180
GGCATCCCAG GATCTCCAGC TTGCAGACAG CCTGTCGTGG GACTTCACAG CCTCCATAAT 240
TATAGA ATG GCA ATG GTC TCT GCG ATG TCC TGG GTC CTG TAT TTG TGG 288
Met Ala Met Val Ser Ala Met Ser Trp Val Leu Tyr Leu Trp
-25 -20 -15
ATA AGT GCT TGT GCA ATG CTA CTC TGC CAT GGA TCC CTT CAG CGG 333
Ile Ser Ala Cys Ala Met Leu Leu Cys His Gly Ser Leu Gln Arg
-10 -5 1

(2) INFORMATION FOR SEQ ID NO: 219:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 284 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..282)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 59..339
id H10776
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(64..282)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 73..291
id N94455
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..85)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 271..354
id N94455
est

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: complement(107..282)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 58..233
id H64097
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(2..120)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 219..337
id H64097
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(38..282)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 60..304
id R98226
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(161..282)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 33..154
id W60134
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(9..120)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 195..306
id W60134
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 51..257
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.7
seq LCRLLCCLVRLFCC/SS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 219:

```
ATCAACCATC CAGCTCCAG CTGGCTAAAC TTTGCCTCCA GTGGTCAAAG ATG GGA      56
                                     Met Gly

AAA GAG TGG GGT TGG CAG GAG ATG GAA AAC GGA GGT GCC GCC CCA GCA      104
Lys Glu Trp Gly Trp Gln Glu Met Glu Asn Gly Gly Ala Ala Pro Ala
      -65              -60              -55

TGG GGG GCA GGT CCC CCA GTC CAC CCT GCC CCT CCC CCT GTG GAG AAG      152
```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Gly | Ala | Gly | Pro | Pro | Val | His | Pro | Ala | Pro | Pro | Pro | Val | Glu | Lys | |
| -50 | | | | | | -45 | | | | -40 | | | | | | |
| ACG | CTT | AGT | TGG | GGG | TGT | GGG | TTT | GGG | CTC | CAT | TCT | GGA | TTC | GGC | GGT | 200 |
| Thr | Leu | Ser | Trp | Gly | Cys | Gly | Phe | Gly | Leu | His | Ser | Gly | Phe | Gly | Gly | |
| -35 | | | | | -30 | | | | -25 | | | | | -20 | | |
| TCC | GGG | GGA | GGG | GTG | GGT | CTG | TGC | CGA | TTA | CTC | TGT | CTT | GTA | CGT | TTG | 248 |
| Ser | Gly | Gly | Gly | Val | Gly | Leu | Cys | Arg | Leu | Leu | Cys | Leu | Val | Arg | Leu | |
| | | | | -15 | | | | -10 | | | | | | -5 | | |
| TTC | TGC | TGC | TCT | TCA | ATA | TTG | TAT | CAA | CGC | CAG | GGG | | | | | 284 |
| Phe | Cys | Cys | Ser | Ser | Ile | Leu | Tyr | Gln | Arg | Gln | Gly | | | | | |
| | | | 1 | | | | 5 | | | | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 220:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 137..358
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 151..372
id N33828
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 2..124
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 14..136
id N33828
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 138..358
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 147..367
id N34173
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 1..148

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 11..158
id N34173
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 35..358
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..324
id T89546
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 138..337
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 107..306
id H67305
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 42..148
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 12..118
id H67305
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 138..302
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 112..276
id T79378
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 33..145
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 8..120
id T79378
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 317..348
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 293..324
id T79378
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 167..229
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.6
 seq LVLSLQFLLLSYD/LF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 220:

```

AATGACAACC GACGTTGGAG TTTGGAGGTG CTTGCCTTAG AGCAAGGGAA ACAGCTCTCA    60
TTCAAAGGAA CTAGAAGCCT CTCCCTCAGT GGTAGGGAGA CAGCCAGGAG CGGTTTTCTG   120
GGAAGTGTGG GATGTGCCCT TGGGGGCCCCG AGAAAACAGA AGGAAG ATG CTC CAG      175
                                   Met Leu Gln
                                   -20

ACC AGT AAC TAC AGC CTG GTG CTC TCT CTG CAG TTC CTG CTG CTG TCC      223
Thr Ser Asn Tyr Ser Leu Val Leu Ser Leu Gln Phe Leu Leu Leu Ser
      -15                      -10                      -5

TAT GAC CTC TTT GTC AAT TCC TTC TCA GAA CTG CTC CAA AAG ACT CCT      271
Tyr Asp Leu Phe Val Asn Ser Phe Ser Glu Leu Leu Gln Lys Thr Pro
      1                      5                      10

GTC ATC CAG CTT GTG CTC TTC ATC ATC CAG GAT ATT GCA GTC CTC TTC      319
Val Ile Gln Leu Val Leu Phe Ile Ile Gln Asp Ile Ala Val Leu Phe
      15                      20                      25                      30

AAC ATC ATC ATC ATT TTC CTC ATG TTC TTC AAC ACC TCC CGG              361
Asn Ile Ile Ile Ile Phe Leu Met Phe Phe Asn Thr Ser Arg
      35                      40
  
```

(2) INFORMATION FOR SEQ ID NO: 221:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 252 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(100..250)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 256..406
 id W72958
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 115..250

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 2..137
id W78821
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 120..250
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..131
id AA083784
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 115..250
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 4..139
id W24219
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 145..250
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 39..144
id C15963
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 114..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 9..48
id C15963
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 172..243
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.5
seq MGVCLLIPGLATA/CI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 221:

```
AGCGCGASGY CCGKCTCTCT TGTGCCCTAG CAGATTCCGT CGCTTCTTCC GGAGCCGTAC   60
GTSGTACCGC CCCGCTCGCG GCGGCCGCG RGGCTTGCTG GGAAGAGAGG CGAACCAGGT  120
CACCTTTCAA GGACCCAGAA GTAGGGTTTT GGCCTAGGTA ACGGGGCAGA G ATG TGG   177
                                         Met Trp
TTC GAG ATT CTC CCC GGA CTC TCC GTC ATG GGC GTG TGC TTG TTG ATT   225
Phe Glu Ile Leu Pro Gly Leu Ser Val Met Gly Val Cys Leu Leu Ile
```

-20

-15

-10

CCA GGA CTG GCT ACT GCG TGC ATC CGG
 Pro Gly Leu Ala Thr Ala Cys Ile Arg
 -5 1

252

(2) INFORMATION FOR SEQ ID NO: 222:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 167 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..103)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 48..149
id AA126155
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(98..143)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 7..52
id AA126155
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 30..95
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5
seq LADPLXLFPFSEG/LP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 222:

| | |
|---|-----|
| ACTGCTCSTG GAGCTCTGCG CTGGTCTTC ATG CGC CCT AGC CCT CTT TCG GGG | 53 |
| Met Arg Pro Ser Pro Leu Ser Gly | |
| -20 -15 | |
| ATA CTG GCC GAC CCC CTC TKC CTT TTC CCC TTT AGT GAA GGC CTC CCC | 101 |
| Ile Leu Ala Asp Pro Leu Xaa Leu Phe Pro Phe Ser Glu Gly Leu Pro | |
| -10 -5 1 | |
| CGT CGC CGC GCG GCT TCC CGG AGC CGA CTG CAG ACT CCC TCA GCC CGG | 149 |
| Arg Arg Arg Ala Ala Ser Arg Ser Arg Leu Gln Thr Pro Ser Ala Arg | |
| 5 10 15 | |

TGT TCC CCG CGT CCG GGG
Cys Ser Pro Arg Pro Gly
20

167

(2) INFORMATION FOR SEQ ID NO: 223:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 350 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 40..352
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 30..342
id H15315
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 12..46
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 1..35
id H15315
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 77..300
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..224
id HUM427H08B
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 22..134
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 3..115
id AA071651
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 138..326
- (C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 95
region 32..220
id R35596
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 65..111
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 91
region 1..47
id W55530
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 261..341
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.4
seq SLMMAQXFIPAVA/KV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 223:

```
AGGAGGGGCTG GACAGCAGCT CAGCTCGCTA GCTGCGCGCT TCCCGGCACA GGCAGTGCCA   60
CTGCGCAGGT TGATCAGCGA AACAGCATCC ATTTTAATCT GCGGGGAGNN CCTGCCTTAC   120
CAGGGCGTTC TCTCCGCCCG CCGGTGGATG CTCCGCGCCT GCSTCCGCA GCCTCGCTCA   180
GCAGTCCTGC GTTGGGGTCT GCGCCCTAGG ATGCACTGAG ATGGTACATC AGGATAACTG   240
CTCGTATCAG GCACAGAAAA ATG AGA GAG AGT CTA TCA DKS AGA AGT TGG CAC   293
                Met Arg Glu Ser Leu Ser Xaa Arg Ser Trp His
                -25                               -20

TTG CCA GCT TCT TTG ATG ATG GCC CAG GKA TTT ATA CCA GCT GTA GCA   341
Leu Pro Ala Ser Leu Met Met Ala Gln Xaa Phe Ile Pro Ala Val Ala
-15                -10                -5

AAA GTA GGA                               350
Lys Val Gly
1
```

(2) INFORMATION FOR SEQ ID NO: 224:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 430 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 226..295
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 121..190
 id W07343
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 251..424
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.4
 seq LSLHLLATRACYG/IL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 224:

```

AACAGGTGGT TGCAGAAGTT TCGTGGTGTC GGGCGCGCGT CTGCACTGCA GACGCAGAGG    60
GTTTGGGAGC GAGCAGTTTC CTGCCCAGGG ATGGGGGTCC TGGCTGCACT TCACGGGGGC    120
GGCCCTTTCG TTTCGCTCTG CGTGACAGGT CTCGCTTGAT TGGGTTTCTC ATGGGTSKCT    180
GGCGTTTCTA CGGCGCGGCT CTCACGGACT CAGGCCAGGC CACTCGCAGG ATTAATTGGA    240
ATTCTTCAAA ATG TCA GGT GTG GTA CCC ACA GCC CCT GAA CAG CCT GCA    289
      Met Ser Gly Val Val Pro Thr Ala Pro Glu Gln Pro Ala
            -55                      -50

NGT GAA ATG GAA AAT CAA ACA AAA CCA CCA GAT CCA AGG CCT GAT GCT    337
Xaa Glu Met Glu Asn Gln Thr Lys Pro Pro Asp Pro Arg Pro Asp Ala
-45              -40                      -35          -30

CCT CCT GAA TAC AGT TCT CAT DBG TTT ACC AGG ACC CCC TGG AAA CAG    385
Pro Pro Glu Tyr Ser Ser His Xaa Phe Thr Arg Thr Pro Trp Lys Gln
      -25              -20          -15

CTG TCC CTC CAC CTA CTG GCT ACC AGA GCT TGC TAT GGG ATA CTA    430
Leu Ser Leu His Leu Leu Ala Thr Arg Ala Cys Tyr Gly Ile Leu
      -10              -5          1

```

(2) INFORMATION FOR SEQ ID NO: 225:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 387 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(75..325)

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 82..332
id AA004751
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(88..255)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 153..320
id N27443
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(18..105)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 304..391
id N27443
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(258..325)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 81..148
id N27443
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(22..325)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 80..383
id AA015608
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(78..253)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 165..340
id H09727
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(253..285)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 132..164
id H09727
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(49..276)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 133..360
 id AA027099
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(269..325)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 83..139
 id AA027099
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 139..369
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.3
 seq TWVFTCLVFFCFG/LS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 225:

```

AGAAACAGGG AGAAGAGGAA GGCTAGAAGC CTGAGCAAGT GAGGGTAGAA CCTTTTGGGA      60
CTGGCCTTTG AAGCTCTGGC CAGGGATGGG GTGGGGGCCA AAAGGACAGA GCCTGGTATG      120
TCTTCATAGT CATTGAGA ATG TGG AGA TAC CAG TTT GGG TGG GGG GTG ATC      171
          Met Trp Arg Tyr Gln Phe Gly Trp Gly Val Ile
                      -75                      -70

ACC AGG GGA CCT AGG GAG ATC CCC TTC CCA CCC TCT CTG TTG GCC TCA      219
Thr Arg Gly Pro Arg Glu Ile Pro Phe Pro Pro Ser Leu Leu Ala Ser
          -65                      -60                      -55

GAG TCA CTC CTG CCC CCT CTC CCT GAC TTG GTG CTC ACA TGC ACC TCA      267
Glu Ser Leu Leu Pro Pro Leu Pro Asp Leu Val Leu Thr Cys Thr Ser
          -50                      -45                      -40                      -35

CTA GGG TTT GTG ACC AGG GTC TGG ATG AGC TTG AAT TTG AAT GAA TTG      315
Leu Gly Phe Val Thr Arg Val Trp Met Ser Leu Asn Leu Asn Glu Leu
                      -30                      -25                      -20

AGT TTG TAT TCT AGA ACC TGG GTT TTT ACA TGT TTG GTC TTT TTT TGT      363
Ser Leu Tyr Ser Arg Thr Trp Val Phe Thr Cys Leu Val Phe Phe Cys
                      -15                      -10                      -5

TTT GGK TTG TCA MCC TCG CTA GGG      387
Phe Gly Leu Ser Xaa Ser Leu Gly
          1                      5

```

(2) INFORMATION FOR SEQ ID NO: 226:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 300 base pairs

- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 123..295
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 121..293
id N78275
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 43..128
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 40..125
id N78275
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 19..295
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 4..280
id R35388
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 40..295
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 14..269
id W03418
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 29..283
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 27..281
id HSC29H041
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 49..266
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 78..295

id R60376

est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 184..270
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.2
seq FFMLLGSLLPVKI/IE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 226:

```
AAGACTGCGC GGCCGTWGGG CGTGCAGCGG CGCCAGTCGG CGGACGAGGG GCCCCCGGGA    60
GTTGCTGGAC TGAGACATGA GCCTCCAAC TGTGTGGTTGG GCTCGGTAGC ACATCGTGGG   120
ACTTGGGTGT GCGCCACAG ATGGTTTGGC CCTGCAGTGA CCAGAGCAGC CCAAGCCGCC   180
ACC ATG GTG AAA TTG CTA GTG GCC AAA ATC CTG TGC ATG GTG GGC GTG       228
  Met Val Lys Leu Leu Val Ala Lys Ile Leu Cys Met Val Gly Val
                                -25                      -20                -15
TTC TTC TTC ATG CTG CTC GGC TCC CTG CTC CCC GTG AAG ATC ATC GAG       276
Phe Phe Phe Met Leu Leu Gly Ser Leu Leu Pro Val Lys Ile Ile Glu
                                -10                      -5                        1
ACA GAT TTT GAG AAG GCC CCA GGG                                     300
Thr Asp Phe Glu Lys Ala Pro Gly
      5                                10
```

(2) INFORMATION FOR SEQ ID NO: 227:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 76 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..73)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 40..111
id HSC39G092
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..73)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98

```
region 37..108
id T89094
est
```

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 11..61
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq IMCLIGLKANASS/ET

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 227:

ATCCTTTTGC ATG CCT GTT TCT ATC ATG TGC TTG ATA GGC CTC AAA GCT 49
Met Pro Val Ser Ile Met Cys Leu Ile Gly Leu Lys Ala
-15 -10 -5

AAT GCT TCC AGT GAA ACA CAC TCA GGG 76
Asn Ala Ser Ser Glu Thr His Ser Gly
1 5

(2) INFORMATION FOR SEQ ID NO: 228:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 125 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- [illegible]

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: 48..98
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq LLYLVLEKLVSRA/FO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 228:

AGATACTAAT CCTTTAAAAA AGTGTAAATG GAGAAAAAGTT ATATTTT ATG AAG GTT 56
Met Lys Val
-15

ATT TTG TTG TAT TTA GTA TTG GAA AAG TTG GTT TCC AGA GCA TTT CAG 104
Ile Leu Leu Tyr Leu Val Leu Glu Lys Leu Val Ser Arg Ala Phe Gln
-10 -5 1

AAT GTC GAA GCA CCA CAC GGG 125
Asn Val Glu Ala Pro His Gly
5

(2) INFORMATION FOR SEQ ID NO: 229:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 170 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 81..170
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 54..143
id T09307
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 29..81
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 1..53
id T09307
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 12..77
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..66
id AA159859
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 28..75
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 1..48
id H13321
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 15..75
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 10..70
id W02365
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 33..77
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 1..45
id AA113927
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 33..89
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.1
seq LLLGGRVCXPSLA/VG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 229:

```

AAGCCGAYYG CTGAAGGCTG GTTTCGTCG AC ATG GCG GTT ACC CTG AGT CTC      53
                               Met Ala Val Thr Leu Ser Leu
                               -15

TTG CTG GGC GGG CGC GTT TGC SCG CCG TCA CTC GCT GTG GGT TCG CGA      101
Leu Leu Gly Gly Arg Val Cys Xaa Pro Ser Leu Ala Val Gly Ser Arg
-10                               -5                               1

CCC GGG GGG TGG CGG GCC CAG GCC CTA TTG GCC GGG AGC CGG ACC CCG      149
Pro Gly Gly Trp Arg Ala Gln Ala Leu Leu Ala Gly Ser Arg Thr Pro
  5                               10                               15                               20

ATT CCG ACT GGG AAC CGG AGG                                          170
Ile Pro Thr Gly Asn Arg Arg
                25

```

(2) INFORMATION FOR SEQ ID NO: 230:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 263 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: 57..261
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 40..244
id R59037
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(184..237)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 38..91
id R67654
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 117..185
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.1
seq LLPELGVVTPAQG/PR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 230:

```
AAGACCATCA ACTATGGAAA GGAGATCTAG GGAACACCGT CTTGAACCCG CCAGGGTTTT    60
GAGTCTCGGA CCCAGGAGAT CCAACCCTGA CCACCCTCCC AGGATGCAGC AGGGGG ATG    119
                                     Met
TTA AAT CAG ACT TCA GGA AGA ACT TCC TTG CTG CCT GAG TTA GGT GTC    167
Leu Asn Gln Thr Ser Gly Arg Thr Ser Leu Leu Pro Glu Leu Gly Val
      -20                      -15                      -10
GTC ACG CCT GCC CAG GGG CCA AGG AGG CGG GTT TGG TGC GGC CAC TCC    215
Val Thr Pro Ala Gln Gly Pro Arg Arg Arg Val Trp Cys Gly His Ser
      -5                      1                      5                      10
AAG GCC AAA GCG AGA AAA TCT TAC TGC GCA CGC GCA ATA GAC TGC CAG    263
Lys Ala Lys Ala Arg Lys Ser Tyr Cys Ala Arg Ala Ile Asp Cys Gln
      15                      20                      25
```

(2) INFORMATION FOR SEQ ID NO: 231:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 430 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 99..416
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 1..318
 id T31969
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 49..334
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 2..287
 id HSB03B072
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(2..57)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 1..56
 id W51830
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 26..262
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5
 seq SFLGFSAPTPIQA/LT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 231:

| | |
|---|-----|
| ATGTGATGAT CCGGAGGCTG GGGAG ATG ACA TCA GAA AAC CTG GTC CAA ACT | 52 |
| Met Thr Ser Glu Asn Leu Val Gln Thr | |
| -75 | |
| GCT CCA AAA AAG AAG AAA AAT AAA GGG AAA AAA GGG TTG GAG CCT TCT | 100 |
| Ala Pro Lys Lys Lys Lys Asn Lys Gly Lys Lys Gly Leu Glu Pro Ser | |
| -70 -65 -60 -55 | |
| CAG AGC ACT GCT GCC AAG GTG CCC AAA AAA GCG AAG ACA TGG ATT CCT | 148 |
| Gln Ser Thr Ala Ala Lys Val Pro Lys Lys Ala Lys Thr Trp Ile Pro | |
| -50 -45 -40 | |
| GAA GTT CAT GAT CAG AAA GCA GAT GTG TCA GCT TGG AAG GAC CTG TTT | 196 |
| Glu Val His Asp Gln Lys Ala Asp Val Ser Ala Trp Lys Asp Leu Phe | |
| -35 -30 -25 | |
| GTT CCC AGG CCG GTT CTC CGA GCA CTC AGC TTT CTA GGC TTC TCT GCA | 244 |
| Val Pro Arg Pro Val Leu Arg Ala Leu Ser Phe Leu Gly Phe Ser Ala | |
| -20 -15 -10 | |
| CCC ACA CCA ATC CAA GCC CTG ACC TTG GCA CCT GCC ATC CGT GAC AAA | 292 |
| Pro Thr Pro Ile Gln Ala Leu Thr Leu Ala Pro Ala Ile Arg Asp Lys | |
| -5 1 5 10 | |
| CTG GAC ATC CTT GGG GCT GCT GAG ACA GGA AGT GGG AAA ACT CTT GCC | 340 |
| Leu Asp Ile Leu Gly Ala Ala Glu Thr Gly Ser Gly Lys Thr Leu Ala | |

| | | | |
|---|----|----|-----|
| 15 | 20 | 25 | |
| TTT GCC ATC CCA ATG ATT CAT GCG GTG TTG CAG TGG CAG AAG AGG AAT | | | 388 |
| Phe Ala Ile Pro Met Ile His Ala Val Leu Gln Trp Gln Lys Arg Asn | | | |
| 30 | 35 | 40 | |
| GCT GCC CCT CCT CCA AGT AAC ACC GAA GCA CCA CCT GGA GAG | | | 430 |
| Ala Ala Pro Pro Pro Ser Asn Thr Glu Ala Pro Pro Gly Glu | | | |
| 45 | 50 | 55 | |

(2) INFORMATION FOR SEQ ID NO: 232:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 252 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 1..37
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 9..45
id W84513
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 16..84
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.9
seq WHXLIPLTWACMA/RQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 232:

| | |
|--|-----|
| AATCTTCTCC GCGCT ATG GCT GCG TTC GGC CGT CAG SCW TTS ART TGG CAC | 51 |
| Met Ala Ala Phe Gly Arg Gln Xaa Xaa Xaa Trp His | |
| -20 | -15 |
| CKY CTG ATC CCC CTC ACC TGG GCC TGT ATG GCT AGG CAG ACT CCT CAT | 99 |
| Xaa Leu Ile Pro Leu Thr Trp Ala Cys Met Ala Arg Gln Thr Pro His | |
| -10 | -5 |
| CTT GGA GAA CAG AGA AGG ACG ACA GCT TCT TTG TKG CGC AAA CTG ACT | 147 |
| Leu Gly Glu Gln Arg Arg Thr Thr Ala Ser Leu Xaa Arg Lys Leu Thr | |
| 10 | 15 |
| ACA GCC TCC AAT GGA GGG GTC ATT GAG GAG TTA TCT TGT GTK AGA TCC | 195 |
| Thr Ala Ser Asn Gly Gly Val Ile Glu Leu Ser Cys Val Arg Ser | |
| 25 | 30 |
| | 35 |

AAT AAC TAT GTG CAG GAA CCA GAG TGC AGG AGG AAT CTT GTT CAG TGC 243
Asn Asn Tyr Val Gln Glu Pro Glu Cys Arg Arg Asn Leu Val Gln Cys
40 45 50

CTC CTC TGG 252
Leu Leu Trp
55

(2) INFORMATION FOR SEQ ID NO: 233:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 347 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 44..187
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 1..144
id AA151232
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 187..285
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 143..241
id AA151232
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 314..349
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 272..307
id AA151232
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 39..225
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 2..188
id AA040827
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 144..314
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.9
 seq GWFLSGCPHGSSA/TW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 233:

```

AATGGGGATG TTGAATTTGG AAATTGGAGG GGACGCTGGT GGWYKKATTG GGTGCAAGGA    60
GTTGGTGTTC ATGGAGGAGC AGGASRCCAG AGTCCCAGCC CTGGAACCGT TCAGAGTGGA    120
GCAGGCACCA CCTGTAATCT ACT ATG TCC CTG ACT TCA TCT CCA AAG AAG AGG    173
                      Met Ser Leu Thr Ser Ser Pro Lys Lys Arg
                      -55                      -50

AGG AGT ATT TGC TTC GAC AGG TTT TTA ATG CCC CAA AGC CAA AGT GGA    221
Arg Ser Ile Cys Phe Asp Arg Phe Leu Met Pro Gln Ser Gln Ser Gly
      -45                      -40                      -35

CCC AGC TCT CTG GGA GAA AGT TAC AGA ACT GGG GTG GGC TTC CTC ATC    269
Pro Ser Ser Leu Gly Glu Ser Tyr Arg Thr Gly Val Gly Phe Leu Ile
      -30                      -25                      -20

CCC GAG GGA TGG TTC CTG AGC GGC TGC CCC CAT GGC TCC AGC GCT ACG    317
Pro Glu Gly Trp Phe Leu Ser Gly Cys Pro His Gly Ser Ser Ala Thr
      -15                      -10                      -5                      1

TGG ACA AAG TGT CAA ACC TCA GCC TCT TTG    347
Trp Thr Lys Cys Gln Thr Ser Ala Ser Leu
      5                      10
  
```

(2) INFORMATION FOR SEQ ID NO: 234:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 227 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 115..226
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 135..246
 id HSC0GF021
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 90..206

(C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.8
 seq SLXFCLSPPPSPS/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 234:

```

AAACCCCATATA CCCCCTCCCC ATCTTGTGAT CACCCTCATT ACCTCTTCTG GGCCCCCTGT      60
GGACCTGCGT TGACCCAGCA TGGGCTACA ATG GGG GAG TTG GGT AAT CGC TCC      113
                               Met Gly Glu Leu Gly Asn Arg Ser
                               -35
CGT TGC ATC CTG TTT CTG TCT GAA AAC CCT TGT CTT TCT GAA TCC ATC      161
Arg Cys Ile Leu Phe Leu Ser Glu Asn Pro Cys Leu Ser Glu Ser Ile
-30                      -25                      -20
TTT CAG TCT CTS RCA TTC TGT CTT TCC CCT CCT CCT TCA CCT TCC CTC      209
Phe Gln Ser Leu Xaa Phe Cys Leu Ser Pro Pro Pro Ser Pro Ser Leu
-15                      -10                      -5                      1
CGT CCC TCT CCC TCA CGG                                          227
Arg Pro Ser Pro Ser Arg
                               5

```

(2) INFORMATION FOR SEQ ID NO: 235:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 430 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 101..355
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 83..337
id AA057242
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 57..101
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 40..84
id AA057242
est

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: 357..400
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 338..381
id AA057242
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 18..51
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..34
id AA057242
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 400..431
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 382..413
id AA057242
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 84..218
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 73..207
id R09808
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 10..51
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..42
id R09808
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 98..376
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.7
seq VLLLRQXFAQAEK/WY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 235:

AATTTTCYGT GGTCCAATA CCCTCGGCGA TCCCAGGCTT GGCAGGGGCAC CGCCTGGCCT 60

CTCCCGTTCC TTTAGGCTGC CGCCGCTGCC TGCCGCC ATG GCA GAG TTG GGC CTA 115
Met Ala Glu Leu Gly Leu
-90

AAT GAG CAC CAT CAA AAT GAA GTT ATT AAT TAT ATG CGT TTT GCT CGT 163
Asn Glu His His Gln Asn Glu Val Ile Asn Tyr Met Arg Phe Ala Arg

| -85 | -80 | -75 | |
|---|-----|-----|-----|
| TCA AAG AGA GGC TTG AGA CTC AAA ACT GTA GAT TCC TGC TTC CAA GAC | | | 211 |
| Ser Lys Arg Gly Leu Arg Leu Lys Thr Val Asp Ser Cys Phe Gln Asp | | | |
| -70 | -65 | -60 | |
| CTC AAG GAG AGC AGG CTG GTG GAG GAC ACC TTC ACC ATA GAT GAA GTC | | | 259 |
| Leu Lys Glu Ser Arg Leu Val Glu Asp Thr Phe Thr Ile Asp Glu Val | | | |
| -55 | -50 | -45 | -40 |
| TCT GAA GTC CTC AAT GGA TTA CAA GCT GTG GTT CAT AGT GAG GTG GAA | | | 307 |
| Ser Glu Val Leu Asn Gly Leu Gln Ala Val Val His Ser Glu Val Glu | | | |
| -35 | -30 | -25 | |
| TCT GAG CTC ATC AAC ACT GCC TAT ACC AAT GTG TTA CTT CTG CGA CAG | | | 355 |
| Ser Glu Leu Ile Asn Thr Ala Tyr Thr Asn Val Leu Leu Leu Arg Gln | | | |
| -20 | -15 | -10 | |
| NTG TTT GCA CAA GCT GAG AAG TGG TAT CTT AAG CTA CAG ACA GAC ATC | | | 403 |
| Xaa Phe Ala Gln Ala Glu Lys Trp Tyr Leu Lys Leu Gln Thr Asp Ile | | | |
| -5 | 1 | 5 | |
| TCT GAA CTT GAA AAC CGA GAA TTA TTA | | | 430 |
| Ser Glu Leu Glu Asn Arg Glu Leu Leu | | | |
| 10 | 15 | | |

(2) INFORMATION FOR SEQ ID NO: 236:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 344 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 20..231
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..212
id N33729
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 135..281
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq SWAVGLLYAVAQG/SK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 236:

```

AATTAGCGAG GCCATGGGGG AAAAAGTCTA ACTGGCGGAA CTCCTGGGAA CTGGGGCGAT   60
GGGCTCTTAG TATCGGAGGA TTGGAGCCAT CTGATTTTTA CCTGAAATTC CTTAGTCTCT   120
CCTGTGTTGG GGAA ATG GTC ACC TTG CCT TCA GGG ACC TGG GCT TTC AGC   170
                Met Val Thr Leu Pro Ser Gly Thr Trp Ala Phe Ser
                -45                                -40

TGT CCA TAC CTG GCC CTG GTT GAT GGC GGC ATG CTG GGC AGT GCA CGT   218
Cys Pro Tyr Leu Ala Leu Val Asp Gly Gly Met Leu Gly Ser Ala Arg
                -35                                -30                                -25

GAA GAC GCA CAT GCA TCT GTT GTT TCC TGG GCA GTT GGT CTT CTT TAT   266
Glu Asp Ala His Ala Ser Val Val Ser Trp Ala Val Gly Leu Leu Tyr
                -20                                -15                                -10

GCA GTG GCT CAG GGC TCC AAG AGA AGG AAA GTG CAA GAT GTC AAG CCT   314
Ala Val Ala Gln Gly Ser Lys Arg Arg Lys Val Gln Asp Val Lys Pro
                -5                                1                                5                                10

CTT NGT TGG TCA AGA ACT GGC ACC CTC GGG   344
Leu Xaa Trp Ser Arg Thr Gly Thr Leu Gly
                15                                20

```

(2) INFORMATION FOR SEQ ID NO: 237:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 116..419
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 122..425
id W68799
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 18..117
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..100
id W68799
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 18..209

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 1..192
id W49697
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 199..290
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 183..274
id W49697
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 291..367
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 276..352
id W49697
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 387..417
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 374..404
id W49697
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 48..419
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..372
id AA149518
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 171..414
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 116..359
id W17032
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 57..174
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..118
id W17032
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 78..386
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 1..309
 id W78749
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 386..419
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 310..343
 id W78749
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 180..383
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.6
 seq LPFSLVSMMLVTQG/LV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 237:

| | |
|---|-----|
| AAGACAGGTG GGGTACTCGG GAAGCTGGAG CGGGCCGGCG GTGCAGTCAC GGGGGAGCGA | 60 |
| GGCCTGCTGG GCTTGGCAAC GAGGGACTCG GCCTCGGAGG CGACCCAGAC CACACAGACA | 120 |
| CTGGGTCAAG GAGTAAGCAG AGGATAAACA ACTGGAAGGA GAGCAAGCAC AAAGTCATC | 179 |
| ATG GCT TCA GCG TCT GCT CGT GGA AAC CAA GAT AAA GAT GCC CAT TTT | 227 |
| Met Ala Ser Ala Ser Ala Arg Gly Asn Gln Asp Lys Asp Ala His Phe | |
| -65 -60 -55 | |
| CCA CCA CCA AGC AAG CAG AGC CTG TTG TTT TGT CCA AAA TMH NNA CTG | 275 |
| Pro Pro Pro Ser Lys Gln Ser Leu Leu Phe Cys Pro Lys Xaa Xaa Leu | |
| -50 -45 -40 | |
| CAC ATC CAC AGA GCA GAG ATC TCA AAG ATT ATG CGA GAA TGT CAG GAA | 323 |
| His Ile His Arg Ala Glu Ile Ser Lys Ile Met Arg Glu Cys Gln Glu | |
| -35 -30 -25 | |
| GAA AGT TTC TGG AAG AGA GCT CTG CCT TTT TCT CTT GTA AGC ATG CTT | 371 |
| Glu Ser Phe Trp Lys Arg Ala Leu Pro Phe Ser Leu Val Ser Met Leu | |
| -20 -15 -10 -5 | |
| GTC ACC CAG GGA CTA GTC TAC CAA GGT TAT TTG GCA GCT AAT TCT AGA | 419 |
| Val Thr Gln Gly Leu Val Tyr Gln Gly Tyr Leu Ala Ala Asn Ser Arg | |
| 1 5 10 | |

(2) INFORMATION FOR SEQ ID NO: 238:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 274 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(37..269)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 99
region 2..234
id AA147071
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(2..31)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 93
region 239..268
id AA147071
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(37..269)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 99
region 58..290
id H98153
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(2..31)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 93
region 295..324
id H98153
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(37..269)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 98
region 59..291
id N49401
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(2..31)

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 93
region 296..325
id N49401
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(87..269)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 37..219
id N80022
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 62..268
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq FILSLCIVLCIVLT/TG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 238:

```

AATTAAGTCA KDATACAAAT CAGCACAGAT AACGDMAATG TTTCCAATAT WWTAAAATGT      60
A ATG TTA CTT ATG AAA AGT ATT TTG CTT AAG GTT GTG TGT GTA TTG TGT      109
  Met Leu Leu Met Lys Ser Ile Leu Leu Lys Val Val Cys Val Leu Cys
    -65                      -60                      -55

ATA TAC CTC AAG TTC AAG TTA ATG GCA TTG ATT TAT GTT CCA GAC AAA      157
Ile Tyr Leu Lys Phe Lys Leu Met Ala Leu Ile Tyr Val Pro Asp Lys
    -50                      -45                      -40

AAT AAC ACA AAT AAT AAT ATC CTT CGT TAT AAC CAC AAT GAG ATA AGT      205
Asn Asn Thr Asn Asn Asn Ile Leu Arg Tyr Asn His Asn Glu Ile Ser
    -35                      -30                      -25

ATT GGC ATT AGT GTT CAG TGC CAT TTT ATA CTT TCT CTC TGT GTT CTC      253
Ile Gly Ile Ser Val Gln Cys His Phe Ile Leu Ser Leu Cys Val Leu
    -20                      -15                      -10

TGT ATT GTA CTA ACC ACT GGG.                                          274
Cys Ile Val Leu Thr Thr Gly
    -5                      1

```

(2) INFORMATION FOR SEQ ID NO: 239:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 249 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 100..249

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 20..169
id N41898
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 113..249
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 38..174
id H69272
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 100..147
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.5
seq RLLRRFLASVIS/RK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 239:

```
AGTTATGTAC GTTCCCCCCC CCGAGGAAGT GAYGACAGGC GTGCCCTTGA CAGGCAGGGA    60
GGGCTAGGCT GTGCATCCCT CCGCTCGCAT TGCAGGGAG ATG GCT CAG CGA CTT    114
                               Met Ala Gln Arg Leu
                               -15
CTT CTG AGG AGG TTC CTG GCC TCT GTC ATC TCC AGG AAG CCC TCT CAG    162
Leu Leu Arg Arg Phe Leu Ala Ser Val Ile Ser Arg Lys Pro Ser Gln
-10                      -5                      1                      5
GGT CAG TGG CCA CCC CTC ACT TCC AGA GCC CTG CAG ACC CCA YAA TGC    210
Gly Gln Trp Pro Pro Leu Thr Ser Arg Ala Leu Gln Thr Pro Xaa Cys
                      10                      15                      20
AGT YCT GGT GGC CTG ACT GTA ACA CCC AAC CCA AGC CGG    249
Ser Xaa Gly Gly Leu Thr Val Thr Pro Asn Pro Ser Arg
25                      30
```

(2) INFORMATION FOR SEQ ID NO: 240:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 310 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 51..209
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 49..207
id N56053
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 2..54
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 1..53
id N56053
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 211..246
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 208..243
id N56053
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 275..307
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 270..302
id N56053
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 51..178
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 44..171
id R59444
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 212..275
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 203..266
id R59444
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 7..54
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 1..48
id R59444
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 274..308
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 266..300
id R59444
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 178..209
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 170..201
id R59444
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 51..178
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 45..172
id AA156837
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 178..246
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 171..239
id AA156837
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 247..308
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 239..300
id AA156837
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 6..54
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 1..49
id AA156837
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 51..178
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 56..183
id N88392

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 13..54
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 19..60
id N88392
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 247..285
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 249..287
id N88392
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 211..246
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 214..249
id N88392
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 179..209
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 183..213
id N88392
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 7..209
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..203
id R18752
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 211..246
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 204..239
id R18752
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 2..232
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4

seq FEARIALLPLLQA/ET

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 240:

```

A ATG GCG GCG TCA AAG GTG AAG CAG GAC ATG CCT CCR MCG GGG GGC TAT      49
  Met Ala Ala Ser Lys Val Lys Gln Asp Met Pro Pro Xaa Gly Gly Tyr
    -75                -70                -65

GGG CCC ATC GAC TAC AAA CGG AAC TTG CCG CGT CGA GGA CTG TCG GGC      97
Gly Pro Ile Asp Tyr Lys Arg Asn Leu Pro Arg Arg Gly Leu Ser Gly
  -60                -55                -50

TAC AGC ATG CTG GCC ATA GGG ATT GGA ACC CTG ATC TAC GGG CAC TGG     145
Tyr Ser Met Leu Ala Ile Gly Ile Gly Thr Leu Ile Tyr Gly His Trp
-45                -40                -35                -30

AGC ATA ATG AAG TGG AAC CGT GAG CGC AGG CGC CTA CAA ATC GAG GAC     193
Ser Ile Met Lys Trp Asn Arg Glu Arg Arg Arg Leu Gln Ile Glu Asp
      -25                -20                -15

TTC GAG GCT CGC ATC GCG CTG TTG CCA CTG TTA CAG GCA GAA ACC GAC     241
Phe Glu Ala Arg Ile Ala Leu Leu Pro Leu Leu Gln Ala Glu Thr Asp
      -10                -5                1

CGG AGG ACC TTG CAG ATG CTT CGG GAG AAC CTG GAG GAG GAG GCC ATC     289
Arg Arg Thr Leu Gln Met Leu Arg Glu Asn Leu Glu Glu Glu Ala Ile
      5                10                15

ATC ATG AAG GAC GTG CCC GGA                                          310
Ile Met Lys Asp Val Pro Gly
  20                25

```

(2) INFORMATION FOR SEQ ID NO: 241:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 93..257
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 103..267
id H87397
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 158..319

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.3

seq LLSLAILSHISTP/GC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 241:

```

AGACAAAGAG AAGGCAAAAT SAGTTTGTGT CCCTGAGTTG CTAAGTGGAG AAGAAACGTC    60
CACCAACCAG GAAACACCTG CCTCCAACCTG TTAATAGGTC TGTGAAATGT GCTTTGTTTC    120
TGGTCAGCAT GGACACCCGC TTTAATAGTG GCTTCAG ATG AGG CAC CTT GTG ACA    175
                               Met Arg His Leu Val Thr
                               -50

GAG GAG CTC TTC CCC TGC AGC AAC CTT GAA GAT GTT GTG GAA GAC AAT    223
Glu Glu Leu Phe Pro Cys Ser Asn Leu Glu Asp Val Val Glu Asp Asn
      -45                      -40                      -35

AGC CAT TCT TAC TTC ACT CTG AGG ATC ACG ATG GCG TGC AAG GGT GTG    271
Ser His Ser Tyr Phe Thr Leu Arg Ile Thr Met Ala Cys Lys Gly Val
      -30                      -25                      -20

CCA AGC ACA TTG CTA TCT TTG GCC ATT CTC TCT CAC ATT AGT ACA CCT    319
Pro Ser Thr Leu Leu Ser Leu Ala Ile Leu Ser His Ile Ser Thr Pro
      -15                      -10                      -5

GGA TGT GAA TGG CAC GTT ATC TAT GTA AGC AGT BAT GGT CTC TAT CTT    367
Gly Cys Glu Trp His Val Ile Tyr Val Ser Ser Xaa Gly Leu Tyr Leu
  1              5              10              15

GTG GTA GAA ATG ACA GAC CGG    388
Val Val Glu Met Thr Asp Arg
      20

```

(2) INFORMATION FOR SEQ ID NO: 242:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 391 base pairs

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: DOUBLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: 108..392

(C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 98
region 104..388
id T08101
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 32..110
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..79
id T08101
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 108..392
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 39..323
id T27149
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 113..392
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 30..309
id H06555
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 108..316
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 90..298
id HSC3CC081
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 60..110
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 94
region 15..65
id HSC3CC081
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 105..316
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 58..269
id T74159
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 76..105
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 5..34
id T74159
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 152..379
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3
seq FRLLXVFAYGTYA/DY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 242:

```

AAGTGGCCAG AGCGACTCTT CAGGGAGGTG GCAGGAAAGG CTTGGAACAG CTGCCGGAGG      60
TGACGGAGCG GCGGCCCCGC CCGGTGCGCT GGAGGTCGAA GCTTCCAGCT CTGGACATCC      120
TGAGCCCAAG TCCCCCACAC TCAGTGCAGT G ATG AGT GCG GAA GTG AAG GTG      172
                               Met Ser Ala Glu Val Lys Val
                               -75                      -70

ACA GGG CAG AAC CAG GAG CAA TTT CTG CTC CTA GCC AAG TCG GCC AAG      220
Thr Gly Gln Asn Gln Glu Gln Phe Leu Leu Leu Ala Lys Ser Ala Lys
                               -65                      -60                      -55

GGG GCA GCG CTG GCC ACA CTC ATC CAT CAG GTG CTG GAG GCC CCT GGT      268
Gly Ala Ala Leu Ala Thr Leu Ile His Gln Val Leu Glu Ala Pro Gly
                               -50                      -45                      -40

GTC TAC GTG TTT GGA GAA CTG CTG GAC ATG CCC AAT GTT AGA GAG CTG      316
Val Tyr Val Phe Gly Glu Leu Leu Asp Met Pro Asn Val Arg Glu Leu
                               -35                      -30                      -25

GCT GAG AGT NAC TTT GCC TCT ACC TTC CGG CTG CTC AMA GTG TTT GCT      364
Ala Glu Ser Xaa Phe Ala Ser Thr Phe Arg Leu Leu Xaa Val Phe Ala
                               -20                      -15                      -10

TAT GGG ACA TAC GCT GAC TAC TWA GCT      391
Tyr Gly Thr Tyr Ala Asp Tyr Xaa Ala
-5                      1

```

(2) INFORMATION FOR SEQ ID NO: 243:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 299 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 47..248
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 15..216

id HUM429E03B
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 244..299
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 211..266
id HUM429E03B
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 133..299
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 107..273
id T80259
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 47..139
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 22..114
id T80259
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 48..292
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 1..245
id T31768
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 111..299
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 94
region 47..235
id N32697
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 64..106
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..43
id N32697
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 74..299
- (C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 94
region 1..226
id N44613
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 165..266
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.3
seq QLFAFLNLLPVEA/DI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 243:

```

ACTTCCGCTT CGCCTAGGTG TTGTCGTCCC TGCTAGTACT CCGGGCTGGG GGTCGGTGCG      60
GATATTCAGT CATGAAATCA SGGTAGGGAC TTCTCCCGCA GCGACGCGGC TGGCAAGACT      120
GTTTGTGTWG CGGGGGCCGG ACTTCAAGGT GATTTTACAA CGAG ATG CTG CTC TCC      176
                               Met Leu Leu Ser
ATA GGG ATG CTC ATG CTG TCA GCC ACA CAA GTS TAS ACC ATC TTG AST      224
Ile Gly Met Leu Met Leu Ser Ala Thr Gln Val Xaa Thr Ile Leu Xaa
-30                               -25                               -20                               -15
GTC CAG CTC TTT GCA TTC TTA AAC CTA CTG CCT GTA GAA GCA GAC ATT      272
Val Gln Leu Phe Ala Phe Leu Asn Leu Leu Pro Val Glu Ala Asp Ile
                               -10                               -5                               1
KTA GCA TAT AAC TTT GAA AAT GCA TCT      299
Xaa Ala Tyr Asn Phe Glu Asn Ala Ser
                               5                               10

```

(2) INFORMATION FOR SEQ ID NO: 244:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 312 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(115..313)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..199
id H19659
est

(ix) FEATURE:

(A) NAME/KEY: other

(B) LOCATION: complement(2..102)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 212..312
id H19659
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(115..313)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..199
id R72881
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(115..290)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..176
id H50517
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(44..102)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 189..247
id H50517
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(115..302)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 36..223
id H41556
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(115..313)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 2..200
id R71794
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(44..102)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 213..271
id R71794
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 229..276
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.2
seq EVVSLSYCGVSWG/RI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 244:

```
ACATTTCTGC TCAGATTCCC GCCATCTCCA TTGCATTCAT GTACTACCCT CAGTCTACAC    60
TCACAATCAT CTTCTCCCAA GACTGCTCCC TTTTGTTTTG TGTTTTTTTG AGGGGAATTA   120
AGGAAAAATA AGTGGGGGCA GGTTTGGAGA GCTGCTTCCA GTGGATAGTT GATGAGAATC   180
CTGACCAAAG GAAGGCACCC TTGACTGTYG GGATAGACAG ATGGACCT ATG GGG TGG    237
                                   Met Gly Trp
                                   -15
GAG GTG GTG TCC CTT TCA TAC TGT GGT GTC TCT TGG GGA AGG ATC TCC    285
Glu Val Val Ser Leu Ser Tyr Cys Gly Val Ser Trp Gly Arg Ile Ser
      -10                      -5                      1
CCG AAT CTC AAT AAA CCA GTG AAC AGG                                312
Pro Asn Leu Asn Lys Pro Val Asn Arg
      5                      10
```

(2) INFORMATION FOR SEQ ID NO: 245:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 252 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 41..210
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 77..246
id R59124
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 37..132
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.2
seq CWELFCLEHGIQA/DG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 245:

```

AAAGCTGAGA GGKGC GCGGG CGAGGACAGC GGCASR ATG CGG GAA TGC ATA TCA      54
                               Met Arg Glu Cys Ile Ser
                               -30

GTC CAC GTG GGC CAA GCG GGA GTD CAG ATT GGC AAT GCC TGC TGG GAG      102
Val His Val Gly Gln Ala Gly Val Gln Ile Gly Asn Ala Cys Trp Glu
-25                               -20                               -15

CTC TTC TGC CTG GAA CAC GGC ATC CAG GCA GAC GGC ACT TTT GAT GCT      150
Leu Phe Cys Leu Glu His Gly Ile Gln Ala Asp Gly Thr Phe Asp Ala
-10                               -5                               1                               5

CAA GCT AGC AAG ATC AAC GAT GAT GAC TCC TTC ACC ACC TTT TTC AGC      198
Gln Ala Ser Lys Ile Asn Asp Asp Asp Ser Phe Thr Thr Phe Phe Ser
                               10                               15                               20

GAG ACT GGC ACT TCT CTG CTG ATG GAA CGC CTC TSC CTG GAT TAT GGC      246
Glu Thr Gly Thr Ser Leu Leu Met Glu Arg Leu Xaa Leu Asp Tyr Gly
                               25                               30                               35

AAG AAA                                                                252
Lys Lys
40

```

(2) INFORMATION FOR SEQ ID NO: 246:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 172 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 82..168
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 107..193
id AA088577
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 31..71
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 53..93
id AA088577
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 31..168
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 24..161
id R16448
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 53..168
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 23..138
id AA094092
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 31..163
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 24..156
id R18030
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 60..168
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 43..151
id W00599
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 29..70
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 13..54
id W00599
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 35..109
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.2
seq LDLLRGLPRVSLA/NL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 246:

AAGGGCGCCC TTGAAAGTTC TTGGATCTGC GGGT ATG GCC GGT CCC TTG CAG GGC 55
Met Ala Gly Pro Leu Gln Gly
-25 -20

GGT GGG GCC CGG GCC CTG GAC CTA CTC CGG GGC CTG CCG CGT GTG AGC 103
Gly Gly Ala Arg Ala Leu Asp Leu Leu Arg Gly Leu Pro Arg Val Ser
-15 -10 -5

| | |
|---|-----|
| CTG GCC AAC TTA AAG CCG AAT CCC GGC TCC AAG AAA CCG GAG AGA AGA | 151 |
| Leu Ala Asn Leu Lys Pro Asn Pro Gly Ser Lys Lys Pro Glu Arg Arg | |
| 1 5 10 | |
| CCA AGA GGT CGG AGA AGG TGG | 172 |
| Pro Arg Gly Arg Arg Arg Trp | |
| 15 20 | |

(2) INFORMATION FOR SEQ ID NO: 247:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 359 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 52..360
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..309
id HSC1ED081
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 171..316
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 146..291
id AA143136
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 31..165
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 6..140
id AA143136
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 310..341
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 286..317
id AA143136
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 176..282
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 77..183
 id N75929
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 102..165
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 3..66
 id N75929
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 156..230
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.2
 seq MFAASXLAMCAGA/EV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 247:

```

ATTTTGGGTC CGGCCTGCTC GCMGTCCGCT CCGTCCGCCC TTAGACCTGT TGCCCAGCAT    60
CCCTGCAGTT CGCGGWACAG TCTCTATTAG AGCGCGTGTA TAGAGGCAGA KAGGAGTGAA    120
GTCCACAGTT CCTCTCCTCC TAGAGCCTGC CGACC ATG CCC GCG GGC GTG CCC    173
                               Met Pro Ala Gly Val Pro
                               -25                      -20

ATG TCC ACC TAC CTG AAA ATG TTC GCA GCC AGT MTC CTG GCC ATG TGC    221
Met Ser Thr Tyr Leu Lys Met Phe Ala Ala Ser Xaa Leu Ala Met Cys
                               -15                      -10                      -5

GCA GGG GCA GAA GTG GTG CAC AGG TAC TAC CGA CCG GAC CTG ACA ATA    269
Ala Gly Ala Glu Val Val His Arg Tyr Tyr Arg Pro Asp Leu Thr Ile
                               1                      5                      10

CCT GAA ATT CCA CCA AAG CGT GGA GAA CTC AAA ACG GAG CTT TTG GGA    317
Pro Glu Ile Pro Pro Lys Arg Gly Glu Leu Lys Thr Glu Leu Leu Gly
                               15                      20                      25

CTG AAA GAA AGA AAA CAC AAA CCT CAA GTT TCT CAA CAG GAG    359
Leu Lys Glu Arg Lys His Lys Pro Gln Val Ser Gln Gln Glu
                               30                      35                      40

```

(2) INFORMATION FOR SEQ ID NO: 248:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 284 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 10..280
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 17..287
id AA082102
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 72..224
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 30..182
id R10417
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 221..280
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 180..239
id R10417
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 47..280
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 2..235
id W73318
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 42..224
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 1..183
id R08733
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 237..269
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 198..230
id R08733
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 39..110
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.2
seq SLPALALSLRASP/RX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 248:

```

AAGTGC GTG GCGGCGACTG CGACGGGCAG TGGCAGTC ATG GCG GTT CAG TGC GTG      56
                                     Met Ala Val Gln Cys Val
                                     -20

AGG TTG GCG CGG CGC AGT CTT CCT GCT TTG GCG TTG TCT CTC AGG GCA      104
Arg Leu Ala Arg Arg Ser Leu Pro Ala Leu Ala Leu Ser Leu Arg Ala
      -15                      -10                      -5

TCT CCC CGG KTG TTG TGC ACA GCC ACG AAA CAA AAG AAC AGT GGC CAG      152
Ser Pro Arg Xaa Leu Cys Thr Ala Thr Lys Gln Lys Asn Ser Gly Gln
      1                      5                      10

AAC CTG GAA GAG GAC ATG GGT CAG AGT GAA CAG AAG GCA GAT CCT CCT      200
Asn Leu Glu Glu Asp Met Gly Gln Ser Glu Gln Lys Ala Asp Pro Pro
      15                      20                      25                      30

GCT ACA GAG AAG ACC CTC CTG GAA GAG AAG GTC AAG TTG GAG GAA CAG      248
Ala Thr Glu Lys Thr Leu Leu Glu Glu Lys Val Lys Leu Glu Glu Gln
      35                      40                      45

CTG AAG GAG ACT GTG GAA AAA TAT AAA CGA GCG AGG                      284
Leu Lys Glu Thr Val Glu Lys Tyr Lys Arg Ala Arg
      50                      55

```

(2) INFORMATION FOR SEQ ID NO: 249:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 307 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(34..74)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 271..311
id T05270
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: 182..292
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.2
seq RLMHHYLSTPTSA/RP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 249:

```
AAAGGCTGCC CTGTGGCACC ACAATCTAAG CTCAGGGCAT AAAACCCCTT GTGGCTTTGA    60
TGAATCCAG  GGCTCAGACC ATAAACCCC  TCGTGGCCTT TTGAATGTGC ACCGACTTGC    120
TGGCTCCTTG CTTCTTGCTC TCCCAGAATC GTAAATTGAT TGTATCTTGA GTTGAAGAA    180
C ATG TTC TCC ATT ATC TCA CGT AGC AGA GCA TGT TCC ATG TAC TTC AAA    229
  Met Phe Ser Ile Ile Ser Arg Ser Arg Ala Cys Ser Met Tyr Phe Lys
    -35                -30                -25

GAA AAT GCT AAA CCG TCA CAG CTA CGC TTG ATG CAC CAC TAC CTT TCT    277
Glu Asn Ala Lys Pro Ser Gln Leu Arg Leu Met His His Tyr Leu Ser
    -20                -15                -10

ACC CCC ACA TCC GCA CGT CCT CAC CAC CTG                                307
Thr Pro Thr Ser Ala Arg Pro His His Leu
    -5                1                5
```

(2) INFORMATION FOR SEQ ID NO: 250:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 212 base pairs
(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(1..209)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 125..333
id H40205
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(80..209)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 131..260
id H03462
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(52..90)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 251..289
id H03462
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(17..54)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 288..325
id H03462
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(17..209)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 130..322
id R05443
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(128..209)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 143..224
id T52770
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(80..128)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 225..273
id T52770
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(43..74)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 281..312
id T52770
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: complement(57..209)
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 143..295
id AA037595
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 108..155
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq LLPATSLAGPVLS/TL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 250:

```
ACTTCTTG TG GACTCACCAA GAGAAACAAA AGGAAGCCTG CACCATTGTA GCCCTGAACT    60
CTTTTCTGGG CACCTGAATC CCAGGAACCC TCAATGAGGT CTTCAAG ATG AAG AGA    116
                                     Met Lys Arg
                                     -15
CTG CTG CCA GCT ACC AGC CTG GCT GGC CCT GTC CTG TCC ACC CTC ATT    164
Leu Leu Pro Ala Thr Ser Leu Ala Gly Pro Val Leu Ser Thr Leu Ile
          -10                      -5                      1
GCC CCA ACT CCC ATG TTG TTT TGT GAA GAT AAA AGC TGG GAT CCT GGG    212
Ala Pro Thr Pro Met Leu Phe Cys Glu Asp Lys Ser Trp Asp Pro Gly
          5                      10                      15
```

(2) INFORMATION FOR SEQ ID NO: 251:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 357 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 108..308
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 95
region 116..316
id HSC2TH021
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 16..99
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 24..107
id HSC2TH021
est

(ix) FEATURE:

- (A) NAME/KEY: other

(B) LOCATION: 30..92
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 92
 region 72..134
 id W54529
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 119..352
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 23..256
 id R59681
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 64..273
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4
 seq IAVLYLHLYDVFG/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 251:

```

AACTGTCCGG GGCTGCGGGG CTTGCTTCCG GCGTCATGGC TCAAAGGGCC TTCCCGAATC      60
CTT ATG CTG ATT ATA ACA AAT CCC TGG CCG AAG TAC TTT GAT GCT GCC      108
  Met Leu Ile Ile Thr Asn Pro Trp Pro Lys Tyr Phe Asp Ala Ala
   -70                      -65                      -60

GGG AGG CTG ACT CCT GAG TTC TCA CAA CGC TTG ACC AAT AAG ATT CGG      156
Gly Arg Leu Thr Pro Glu Phe Ser Gln Arg Leu Thr Asn Lys Ile Arg
-55                      -50                      -45                      -40

GAG CTT CTT CAG CAA ATG GAG AGA GGC CTG AAA TCA GCA GAC CBB MSG      204
Glu Leu Leu Gln Gln Met Glu Arg Gly Leu Lys Ser Ala Asp Xaa Xaa
                   -35                      -30                      -25

GAT GGC ACC GGT TAC ACT GGC TGG GCA GGT ATT GCT GTG CTT TAC TTA      252
Asp Gly Thr Gly Tyr Thr Gly Trp Ala Gly Ile Ala Val Leu Tyr Leu
                   -20                      -15                      -10

CAT CTT TAT GAT GTA TTT GGG GAC CCT GCC TAC CTA CAG TTA GCA CAT      300
His Leu Tyr Asp Val Phe Gly Asp Pro Ala Tyr Leu Gln Leu Ala His
                   -5                      1                      5

GGC TAT GTA AAG CAA AGT CTG AAC TGC TTA ACC AAG CGC TCC ATC ACC      348
Gly Tyr Val Lys Gln Ser Leu Asn Cys Leu Thr Lys Arg Ser Ile Thr
  10                      15                      20                      25

TTC CAA GGG                                          357
Phe Gln Gly

```

(2) INFORMATION FOR SEQ ID NO: 252:

(1) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 414 base pairs

(B) TYPE: NUCLEIC ACID
(C) STRANDEDNESS: DOUBLE
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 11..238
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..228
id R26618
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 283..397
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 96..210
id HUM528H09B
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 202..282
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 16..96
id HUM528H09B
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 283..411
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 110..238
id C18739
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 202..282
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 30..110
id C18739
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 235..411
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 1..177

id R17985
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..70)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 9..77
id R40947
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 274..336
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq AWLAQGSSSAGWG/LE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 252:

```
ATCAATTTTK TGAATAGTTT CCATTTCAA TATCTTGTTT TACTTGTTT ATAAAATAGT    60
GGTTTTCAA CTGTAGAGCT CTGGACTTCT CACTTCTAGG GCAGAGGGAG CCTGAACAAG    120
TGAGGCTCTG GGTTCCCCAT TCCTAATTAA ACCAATGGAA AGAAGGGGTC TAATAACAAA    180
CTACAGCAAC ACATTTTTC TTTTCAGCTT ACTGCTGTAT CTCCCAGTCT AACCCCTAGCA    240
TCCAGAAGTG GCACAAAACC CCTCTGCTGG CTC ATG TGT GCA ACT GAG ACT GTC    294
                        Met Cys Ala Thr Glu Thr Val
                        -20                      -15

AGA GCA TGG CTA GCT CAG GGG TCC AGC TCT GCA GGG TGG GGG CTA GAG    342
Arg Ala Trp Leu Ala Gln Gly Ser Ser Ser Ala Gly Trp Gly Leu Glu
                        -10                      -5                      1

AGG AAG CAG GGA GTA TCT GCA CAC AGG ATG CCC GCG CTC AGG TGG TTG    390
Arg Lys Gln Gly Val Ser Ala His Arg Met Pro Ala Leu Arg Trp Leu
                        5                      10                      15

CAG AAG TCA GTG CCA GGA BCC ATG    414
Gln Lys Ser Val Pro Gly Xaa Met
    20                      25
```

(2) INFORMATION FOR SEQ ID NO: 253:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 189 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 124..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 25..54
id N91869
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 124..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 5..34
id H53427
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 124..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 19..48
id H88369
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 124..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 26..55
id T79771
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 124..153
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 90
region 29..58
id H41152
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 46..183
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.9
seq AAAFCLKXXGANT/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 253:

AGAAATTCTC CCACTCTTCG AGCCTACACC AGACATGTGA GGAGA ATG CTG CTG CTT 57
Met Leu Leu Leu
-45

GCA ACA CAC CCA GAG ACG GTG GGG CAG GTG ACA CTG CGT GTG TRC CCG 105

Ala Thr His Pro Glu Thr Val Gly Gln Val Thr Leu Arg Val Xaa Pro
-40 -35 -30

GTG TCT CTG GAA GTG TCT ATA CAG ATG TGT GCT GCT GCT GCT GCT GCT 153
Val Ser Leu Glu Val Ser Ile Gln Met Cys Ala Ala Ala Ala Ala
-25 -20 -15

TTC TGC CTT AAA ATK WCT GGA GCC AAC ACC CAC CCA 189
Phe Cys Leu Lys Xaa Xaa Gly Ala Asn Thr His Pro
-10 -5 1

(2) INFORMATION FOR SEQ ID NO: 254:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 300 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 149..232
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 91..174
id AA081517
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 224..297
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 165..238
id AA081517
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 90..141
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 34..85
id AA081517
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 76..141
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 20..85
id N53273

est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 149..193
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 91..135
 id N53273
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: complement(237..297)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 172..232
 id H14293
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 43..234
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.9
 seq GLGGAQLQGGAXG/RG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 254:

| | |
|---|-----|
| AGTCTCTGGG CGCGGCCATG TTGGAGGSTC CGGGCCCCGAG TG ATG GCT GCG AGC | 54 |
| Met Ala Ala Ser | |
| TCA GCA ACC CCA GCG CCS ASC RGA AGT CAG CGG TGC GGG GCA GAT GCT | 102 |
| Ser Ala Thr Pro Ala Pro Xaa Xaa Ser Gln Arg Cys Gly Ala Asp Ala | |
| -60 -55 -50 -45 | |
| GGA AGT GCA GCC AGG ATT GTA TTT CGG TGG GGC CGC GGC CGT CGC GGA | 150 |
| Gly Ser Ala Ala Arg Ile Val Phe Arg Trp Gly Arg Gly Arg Arg Gly | |
| -40 -35 -30 | |
| GCC AGA TCA CCT GAG GGA AGC GGG CAT CAC GGC CGT GCT AAC AGT GGA | 198 |
| Ala Arg Ser Pro Glu Gly Ser Gly His His Gly Arg Ala Asn Ser Gly | |
| -25 -20 -15 | |
| CTC GGA GGA GCC CAG CTT CAA GGC GGG GCC TRG GGT CGA GGA TCT ATG | 246 |
| Leu Gly Gly Ala Gln Leu Gln Gly Gly Ala Xaa Gly Arg Gly Ser Met | |
| -10 -5 1 | |
| GCG CCT CTT CGT GCC AGC GCT GGA CAA ACC CGA GAC GGA CCT ACT CAG | 294 |
| Ala Pro Leu Arg Ala Ser Ala Gly Gln Thr Arg Asp Gly Pro Thr Gln | |
| 5 10 15 20 | |
| CCA GGG | 300 |
| Pro Gly | |

(2) INFORMATION FOR SEQ ID NO: 255:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 151 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 13..150
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..138
id T36282
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 46..150
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..105
id T08090
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 46..150
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 1..105
id T08091
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 72..150
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..79
id H56620
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 80..150
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 1..71
id AA027983
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 2..52
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9

seq PLAGLAAAAALGRA/PP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 255:

```

A ATG CTG CGG CGC CCG CTG GCC GGG CTG GCT GCG GCC GCC CTG GGC CGG      49
  Met Leu Arg Arg Pro Leu Ala Gly Leu Ala Ala Ala Leu Gly Arg
    -15                -10                -5

GCC CCA CCG GAC GGC TTG CTC TGC TCT TTA CCT GGG GTT GCT GTC GAG      97
Ala Pro Pro Asp Gly Leu Leu Cys Ser Leu Pro Gly Val Ala Val Glu
   1                5                10                15

GAC CCT GTG CAA GAC TCG GCC GGT TTT TCT TTC TCC CTG ATG GAC AGA     145
Asp Pro Val Gln Asp Ser Ala Gly Phe Ser Phe Ser Leu Met Asp Arg
    20                25                30

CCC AAG
Pro Lys
                                         151

```

(2) INFORMATION FOR SEQ ID NO: 256:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 217 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 3..214
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 14..225
id H08058
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 2..91
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 10..99
id R11727
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 59..109
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.8
seq GFVAALVAGGVAG/VS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 256:

```

AGACGTGATC CGCTTCTGCT CCGGCTTGGA TTGTAGCCTT GACGAGGTCT GAGCGACC      58
ATG GAC CGG CCG GGG TTC GTG GCA GCG CTG GTG GCT GGT GGG GTA GCA      106
Met Asp Arg Pro Gly Phe Val Ala Ala Leu Val Ala Gly Gly Val Ala
      -15                      -10                      -5
GGT GTT TCT GTT GAC TTG ATA TTA TTT CCT CTG GAT ACC ATT AAA ACC      154
Gly Val Ser Val Asp Leu Ile Leu Phe Pro Leu Asp Thr Ile Lys Thr
      1                      5                      10                      15
AGG CTG CAG AGT CCC CAA GGA TTT AGT AAG GCT GGT GGT TTT CAT GGA      202
Arg Leu Gln Ser Pro Gln Gly Phe Ser Lys Ala Gly Gly Phe His Gly
      20                      25                      30
ATA TAT GCT AGC TGG
Ile Tyr Ala Ser Trp
      35

```

(2) INFORMATION FOR SEQ ID NO: 257:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 158 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 39..155
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..117
id C01598
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 9..71
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.8
seq SMDLLTLLFQRRS/HQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 257:

```

AATCAAGT ATG ATT GTT TGG TTT GAG GGT ATT TCC ATG GAT CTC CTT ACA      50
Met Ile Val Trp Phe Glu Gly Ile Ser Met Asp Leu Leu Thr
      -20                      -15                      -10
CTG CTA TTC CAG AGG AGA AGC CAC CAG GTC ACT CAA CTC TTA GTA TCA      92

```


(2) INFORMATION FOR SEQ ID NO: 258:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 258:

| | | | | | | |
|------------|------------|--|------------|------------|------------|-----|
| AAGCGGCTGT | CCTCCCTCGC | TTTTGGAGCT | CCGACCTCAG | CTTCGCCTGC | GAGCTGGGTT | 60 |
| GTGTAAAGGC | TGGTCATTTT | GGGGCGCTTA | GGGGTGGGTG | CCGGGGGGCG | CGCTTTCCCT | 120 |
| CGTGAAGGTC | GCTCCAGGAG | TC ATG CGT ACA TTC GTT CAT TTT GCT CTG GAC | 172 | | | |
| | | Met Arg Thr Phe Val His Phe Ala Leu Asp | | | | |
| | | -20 | -15 | | | |

region 266..303
id R10063
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 131..273
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 130..272
id R12045
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 35..100
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 36..101
id R12045
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 103..149
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 103..149
id R12045
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 3..35
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 5..37
id R12045
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 131..273
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 125..267
id R12117
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 5..100
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..96
id R12117
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 103..149

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 98..144
id R12117
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 131..273
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 92
region 102..244
id T79499
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 28..102
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 93
region 1..75
id T79499
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 104..149
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 76..121
id T79499
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 275..312
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 248..285
id T79499
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 109..178
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 95
region 109..178
id H17371
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 275..332
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 283..340
id H17371
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 44..106
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 42..104
 id H17371
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 42..224
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.8
 seq LVMTFLFRNGSLQ/EK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 259:

```

AGCTTACAGT TCCTAACCCC GACCCTGCGC GCASCCGCAC T ATG GCA GCC CCG CCG      56
                                   Met Ala Ala Pro Pro
                                   -60

CAG CTA AGG GCT CTG CTC GTA GTC GTC AAC GCA CTG CTG CGC AAG CGC      104
Gln Leu Arg Ala Leu Leu Val Val Val Asn Ala Leu Leu Arg Lys Arg
-55                               -50                               -45

CGC TAC CAC GCT GCG TTG GCC GTG CTT AAG GGC TTC CGG AAC GGG GCT      152
Arg Tyr His Ala Ala Leu Ala Val Leu Lys Gly Phe Arg Asn Gly Ala
-40                               -35                               -30                               -25

GTC TAT GGA GCC AAA ATC CGG GCC CCT CAC GCG CTG GTC ATG ACC TTT      200
Val Tyr Gly Ala Lys Ile Arg Ala Pro His Ala Leu Val Met Thr Phe
                               -20                               -15                               -10

CTC TTC CGG AAT GGC AGC CTC CAG GAG AAG CTG TGG GCC ATA CTG CAG      248
Leu Phe Arg Asn Gly Ser Leu Gln Glu Lys Leu Trp Ala Ile Leu Gln
                               -5                               1                               5

GCC ACA TAT ATC CAC TCC TGG AAC CTG GCA CGG TTT GTG TTC ACC TAC      296
Ala Thr Tyr Ile His Ser Trp Asn Leu Ala Arg Phe Val Phe Thr Tyr
10                               15                               20

AAG GGT CTC CGT GCC CTG CAG TCC TAC ATA CAA GGC CCT GGG      338
Lys Gly Leu Arg Ala Leu Gln Ser Tyr Ile Gln Gly Pro Gly
25                               30                               35

```

(2) INFORMATION FOR SEQ ID NO: 260:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 364 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 44..158
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 208..322
 id AA017601
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 287..334
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 451..498
 id AA017601
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 128..181
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.8
 seq GXALGLLPSLAKA/ED

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 260:

```

ACCCAGCTCC CGGAAGTGCG CCCGGAGCCG GCGCCGCGGG CCGAGTGTCC TGGTGAAGAC    60
CTAGTTCTTG CCGGAGACAA TTCCACTGCA GAAGCACTTT ACTTAAAAGG ACTTGCCAGG    120
CTGGACA ATG CCC GTT GAC TTG GGG CAD GCC CTA GGC CTG CTG CCA TCG    169
      Met Pro Val Asp Leu Gly Xaa Ala Leu Gly Leu Leu Pro Ser
                -15                      -10                      -5
CTG GCG AAG GCC GAG GAC TCC CAG TTC TCA GAA TCA GAT GCT GCC CTT    217
Leu Ala Lys Ala Glu Asp Ser Gln Phe Ser Glu Ser Asp Ala Ala Leu
                1                      5                      10
CAA GAG GAA CTC TCC AGC CCT GAG ACC GCA CGC CAG CTT TTC AGG CAG    265
Gln Glu Glu Leu Ser Ser Pro Glu Thr Ala Arg Gln Leu Phe Arg Gln
                15                      20                      25
TTC CGT TAC CAG GTG ATG TCT GGG CCT CAT GAG ACC TTG AAG CDA CTT    313
Phe Arg Tyr Gln Val Met Ser Gly Pro His Glu Thr Leu Lys Xaa Leu
                30                      35                      40
CGG AAG CTC TGT TTC CAG TGG CTA CAG CCA GAG GTT CAC ACC AAA GAG    361
Arg Lys Leu Cys Phe Gln Trp Leu Gln Pro Glu Val His Thr Lys Glu
                45                      50                      55
GGG    364
Gly

```

(2) INFORMATION FOR SEQ ID NO: 261:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 433 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(324..433)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 253..362
id H93008
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(200..267)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 423..490
id H93008
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(159..205)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 484..530
id H93008
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(116..162)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 91
region 526..572
id H93008
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(259..299)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 390..430
id H93008
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(52..83)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 90

region 602..633
id H93008
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 67..243
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..177
id AA146840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 332..417
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 269..354
id AA146840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 242..299
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 177..234
id AA146840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 299..334
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 235..270
id AA146840
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 85..299
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 99
region 1..215
id AA036893
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 299..412
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 97
region 216..329
id AA036893
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 98..243

(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 1..146
id T49176
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 242..299
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 146..203
id T49176
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 344..396
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 98
region 250..302
id T49176
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 299..349
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 96
region 204..254
id T49176
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 19..243
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 1..225
id H01262
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 242..296
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 225..279
id H01262
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 17..232
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq LMGLALAVYKCQS/MG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 261:

```

ACTCAAACAG ATTCCC ATG AAT CTC TTC ATC ATG TAC ATG GCA GGC AAT ACT   52
      Met Asn Leu Phe Ile Met Tyr Met Ala Gly Asn Thr
      -70                               -65

ATC TCC ATC TTC CCT ACT ATG ATG GTG TGT ATG ATG GCC TGG CGA CCC   100
Ile Ser Ile Phe Pro Thr Met Met Val Cys Met Met Ala Trp Arg Pro
-60                               -55                               -50                               -45

ATT CAG GCA CTT ATG GCC ATT TCA GCC ACT TTC AAG ATG TTA GAA AGT   148
Ile Gln Ala Leu Met Ala Ile Ser Ala Thr Phe Lys Met Leu Glu Ser
      -40                               -35                               -30

TCA AGC CAG AAG TTT CTT CAG GGT TTG GTC TAT CTC ATT GGG AAC CTG   196
Ser Ser Gln Lys Phe Leu Gln Gly Leu Val Tyr Leu Ile Gly Asn Leu
      -25                               -20                               -15

ATG GGT TTG GCA TTG GCT GTT TAC AAG TGC CAG TCC ATG GGA CTG TTA   244
Met Gly Leu Ala Leu Ala Val Tyr Lys Cys Gln Ser Met Gly Leu Leu
      -10                               -5                               1

CCT ACA CAT GCA TCG GAT TGG TTA GCC TTC ATT GAG CCC CCT GAG AGA   292
Pro Thr His Ala Ser Asp Trp Leu Ala Phe Ile Glu Pro Pro Glu Arg
      5                               10                               15                               20

ATG GAG TCA GTG GTG GAG GAC TGC TTT TGT GAA CAT GAG AAA GCA GCG   340
Met Glu Ser Val Val Glu Asp Cys Phe Cys Glu His Glu Lys Ala Ala
      25                               30                               35

CCT GGT CCC TAT GTA TTT GGG TCT TAT TTA CAT CCT TCT TTA AGC CCA   388
Pro Gly Pro Tyr Val Phe Gly Ser Tyr Leu His Pro Ser Leu Ser Pro
      40                               45                               50

GTG GCT CCT CAG CAT ACT CTT AAA CTA ATC ACT TAT GTT AAA AAG   433
Val Ala Pro Gln His Thr Leu Lys Leu Ile Thr Tyr Val Lys Lys
      55                               60                               65

```

(2) INFORMATION FOR SEQ ID NO: 262:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 370 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 2..250
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 14..262
id N33874
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 78..270
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 1..193
id H01141
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 283..349
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 207..273
id H01141
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 284..366
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92
region 320..402
id AA023741
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 74..270
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 2..198
id R27699
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 320..349
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 93
region 253..282
id R27699
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(320..366)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 282..328
id N33481
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(283..322)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 100
region 327..366
id N33481

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(235..270)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 379..414
id N33481
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 65..217
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.8
seq NVLFVAGLAFVIG/LE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 262:

```

ACGACTCAGC TTCCCACCCT GGGCTTTCCG AGGTGCTTTC GCCGCTGTCC CCACCACTGC      60
AGCC ATG ATC TCC TTA ACG GAC ACG CAG AAA ATT GGA ATG GGA TTA ACA      109
  Met Ile Ser Leu Thr Asp Thr Gln Lys Ile Gly Met Gly Leu Thr
    -50                      -45                      -40

GGA TTT GGA GTG TTT TTC CTG TTC TTT GGA ATG ATT CTC TTT TTT GAC      157
Gly Phe Gly Val Phe Phe Leu Phe Phe Gly Met Ile Leu Phe Phe Asp
  -35                      -30                      -25

AAA GCA CTA CTG GCT ATT GGA AAT GTT TTA TTT GTA GCC GGC TTG GCT      205
Lys Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly Leu Ala
  -20                      -15                      -10                      -5

TTT GTA ATT GGT TTA GAA AGA ACA TTC AGA TTC TTC TTC CAA AAA CAT      253
Phe Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe Phe Gln Lys His
          1                      5                      10

AAA ATG AAA GCT ACA GGT TTT TTT CTG GGT GGT GTA TTT GTA GTC CTT      301
Lys Met Lys Ala Thr Gly Phe Phe Leu Gly Gly Val Phe Val Val Leu
    15                      20                      25

ATT GGT TGG CCT TTG ATA GGC ATG ATC TTC GAA ATT TAT GGA TTT TTT      349
Ile Gly Trp Pro Leu Ile Gly Met Ile Phe Glu Ile Tyr Gly Phe Phe
    30                      35                      40

CTC TTG TTC AGG GGC TTA GGG      370
Leu Leu Phe Arg Gly Leu Gly
  45                      50

```

(2) INFORMATION FOR SEQ ID NO: 263:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 249 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 112..249
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 97
 region 153..290
 id AA010288
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 112..218
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 96
 region 101..207
 id R26319
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 208..247
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 92
 region 198..237
 id R26319
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 110..249
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 95
 region 24..163
 id W69087
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: 112..247
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 103..238
 id H01791
 est

(ix) FEATURE:
 (A) NAME/KEY: other
 (B) LOCATION: complement(112..217)
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 287..392
 id AA146617
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 91..189
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.6
 seq LAVFQMLKSMCAG/QR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 263:

```

AAAAAAGCGA AGGCCGGCCG GCGGGGAAG GGAAATGGCG AGGCAGGAGT GCGGGGGAGG      60
GAGTGGTCCT TAGCTGAATG CGCCTGCGTT ATG GCG GCC TCC GGC GCC CCA AGG      114
                               Met Ala Ala Ser Gly Ala Pro Arg
                               -30

ATC CTG GTG GAC CTG CTG AAG CTG ASC GTG GCC CCC CTC GCC GTC TTC      162
Ile Leu Val Asp Leu Leu Lys Leu Xaa Val Ala Pro Leu Ala Val Phe
-25                      -20                      -15                      -10

CAG ATG CTC AAG TCC ATG TGT GCC GGG CAG AGG CTA GCG AGC GAG CCC      210
Gln Met Leu Lys Ser Met Cys Ala Gly Gln Arg Leu Ala Ser Glu Pro
                      -5                      1                      5

CAG GAC CCT GCG GCC GTG TCT CTG CCC ACG TCG AGC GGG      249
Gln Asp Pro Ala Ala Val Ser Leu Pro Thr Ser Ser Gly
      10                      15                      20
  
```

(2) INFORMATION FOR SEQ ID NO: 264:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 324 base pairs
 (B) TYPE: NUCLEIC ACID
 (C) STRANDEDNESS: DOUBLE
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 52..178
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 68..194
 id W51974
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 173..253
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 98
 region 190..270
 id W51974
 est

(ix). FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 49..126
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6
seq ARSLLQFLRLVGQ/LK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 264:

```

AAGGAGCTTC GCCGCGGCCT GCTCCGCCCA GCCGGGGTCG GTGGCCGC ATG GCT TCG      57
                                   Met Ala Ser
                                   -25

GTC TCC TCT GCG ACC TTC TCG GGC CAC GGG GCT CGG TCC CTA CTG CAG      105
Val Ser Ser Ala Thr Phe Ser Gly His Gly Ala Arg Ser Leu Leu Gln
      -20                               -15                          -10

TTC CTG CGG CTG GTA GGG CAG CTC AAG AGA GTC CCA CGA ACT GGC TGG      153
Phe Leu Arg Leu Val Gly Gln Leu Lys Arg Val Pro Arg Thr Gly Trp
      -5                               1                               5

GTA TAC AGA AAT GTC CAG AGG CCG GAG AGC GTT TCA GAT CAC ATG TAC      201
Val Tyr Arg Asn Val Gln Arg Pro Glu Ser Val Ser Asp His Met Tyr
      10                               15                          20                          25

CGG ATG GCA GTT ATG GCT ATG GTG ATC AAA GAT GAC CGT CTT AAC AAA      249
Arg Met Ala Val Met Ala Met Val Ile Lys Asp Asp Arg Leu Asn Lys
      30                               35                          40

GAC CGA TGT GTA CGC CTA GCC CTG GTT CAT GAT ATG GCA GAA TGC ATC      297
Asp Arg Cys Val Arg Leu Ala Leu Val His Asp Met Ala Glu Cys Ile
      45                               50                          55

GTT GGG GAC ATA GCA CCA GCA GAT GGG      324
Val Gly Asp Ile Ala Pro Ala Asp Gly
      60                               65

```

(2) INFORMATION FOR SEQ ID NO: 265:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 157 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(2..156)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 72..226
id AA134487

est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(43..156)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 73..186
id T23528
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: complement(6..156)
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 69..219
id R50519
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 86..133
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6
seq LAVLLVLFTLNIL/KS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 265:

```
ACTGTATAAT RTGTGTATAT KAAAATGTAA TTGATTTTCAG YYGAAAGTAT TTTAAAGCTG    60
ATAAATAGCA TTAGGGTTCT TTGCA ATG TGG TAT CTA GCT GTA TTA TTG GTT    112
                        Met Trp Tyr Leu Ala Val Leu Leu Val
                        -15                               -10

TTA TTT ACT TTA AAC ATT TTG AAA AGC TTA TAC TGG CAG CCT GGG    157
Leu Phe Thr Leu Asn Ile Leu Lys Ser Leu Tyr Trp Gln Pro Gly
      -5                               1                               5
```

(2) INFORMATION FOR SEQ ID NO: 266:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 370 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 41..79
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 92

region 80..118
id T06923
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 197..322
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5
seq INSLLXSSLSRC/LE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 266:

```
ACATAAAGGA CASACGAGTC CTAATTGACA ACATCTAGTC TTTCTGGATG TTAAAGAGGT    60
TGCCAGTGTA TGACAAAAGT AGAGTTAGTA AACTAATATA TTTTGTACAT TTTGTTTTAC    120
AAGTCCTAGG AAAGATTGTC TTCTGAAAAT TTGATGTCTT CTGGGTTGAW GGAGATGGGA    180
AGGGTTCTAG GCCAGA ATG TTC ACA TTT GGA AGA CTC TTT CAA ATT ATA ACT    232
      Met Phe Thr Phe Gly Arg Leu Phe Gln Ile Ile Thr
              -40                      -35

GTT GTT ACA TGT TTG CAG TTT ATT CAA GAC TGC TGT ATA CAT AGT AGA    280
Val Val Thr Cys Leu Gln Phe Ile Gln Asp Cys Cys Ile His Ser Arg
-30                      -25                      -20                      -15

CAA ATT AAC TCC TTA CTT GAR RCA TCT AGT CTA TCT AGA TGT TTA GAA    328
Gln Ile Asn Ser Leu Leu Glu Xaa Ser Ser Leu Ser Arg Cys Leu Glu
              -10                      -5                      1

GTG CCG ATG TAT GTY AAA TGT ATA GGT AGT AAA ATA CCA CTT    370
Val Pro Met Tyr Val Lys Cys Ile Gly Ser Lys Ile Pro Leu
      5                      10                      15
```

(2) INFORMATION FOR SEQ ID NO: 267:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 301 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 53..297
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 96
region 31..275
id HUM414A03B
est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 22..51
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 100
 region 1..30
 id HUM414A03B
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 106..256
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 99
 region 84..234
 id H83476
 est

(ix) FEATURE:

(A) NAME/KEY: other
 (B) LOCATION: 48..105
 (C) IDENTIFICATION METHOD: blastn
 (D) OTHER INFORMATION: identity 96
 region 27..84
 id H83476
 est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: 116..268
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 3.5
 seq VGTLCQLDWWIWG/GI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 267:

```

AAAATCAAGG CAGGGGATGG AGGCAAGTGG GGGTCGCGCC TGGAGCGGAG CRTCGGCCTC      60
CGGAGCCGCA GCTGCAGCCC TGTATTGAGC TGAGATGGCT CGAGCCTAAC ATTCC  ATG      118
                                     Met
ATC CAG GAT CGT GAC AGA TGT GCA CAG GCT GCT GCT GTT GCT GCT GTG      166
Ile Gln Asp Arg Asp Arg Cys Ala Gln Ala Ala Ala Val Ala Ala Val
-50                -45                -40                -35

GGT AAT TTG GAA CCA CGA GGC ACC CCA GGG CCA GAA GAC GAG GCA TTC      214
Gly Asn Leu Glu Pro Arg Gly Thr Pro Gly Pro Glu Asp Glu Ala Phe
                -30                -25                -20

TGT CTG CCT GGA TGT GTG GGA ACT CTC TGC CAA CTT GAT TGG TGG ATC      262
Cys Leu Pro Gly Cys Val Gly Thr Leu Cys Gln Leu Asp Trp Trp Ile
                -15                -10                -5

TGG GGG GGG ATC CAC CCC CAC CCC ACG AGG AAA GCC TGG      301
Trp Gly Gly Ile His Pro His Pro Thr Arg Lys Ala Trp
      1                5                10

```

(2) INFORMATION FOR SEQ ID NO: 268:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 404 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 261..404
- (C) IDENTIFICATION METHOD: fasta
- (D) OTHER INFORMATION: identity 100
region 1..144
id HSU16126
vrt

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 261..353
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 11.3
seq LLLCLLWIGYSQG/TT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 268:

```

AGGATTTCTC CCGGATGCTC TCCGACTAAC ATGGATGTCC CACCATTCCT TGCAGTGGAA   60
GGTTGTTTCCT TGGCGCAGTG AGTGAAGAAC ATGCAGCGAT TGCTAATGGG TTTGGGAAGC  120
GGAGACTCCT TCCTCTCTCT ATGACCATGC CGTGATCGTG TCTGCGGTCA CCACTCGACG  180
CATCCTCATT TCTACCCGAA CCCAGGAGCC GAACGCTAGA TCGGGGAAGT GGGTGCCGTG  240
CGTGTGGGCA CAGAAACACC ATG AAG ATT ATT TTC CCG ATT CTA AGT AAT CCA   293
      Met Lys Ile Ile Phe Pro Ile Leu Ser Asn Pro
      -30                               -25

GTC TTC AGG CGC ACC GTT AAA CTC CTG CTC TGT TTA CTG TGG ATT GGA   341
Val Phe Arg Arg Thr Val Lys Leu Leu Leu Cys Leu Leu Trp Ile Gly
-20                               -15                               -10                               -5

TAT TCT CAA GGA ACC ACA CAT GTA TTA AGA TTT GGT GGT ATT TTT GAA   389
Tyr Ser Gln Gly Thr Thr His Val Leu Arg Phe Gly Gly Ile Phe Glu
      1                               5                               10

TAT GTG GAA TCT GGC                                           404
Tyr Val Glu Ser Gly
      15

```

(2) INFORMATION FOR SEQ ID NO: 269:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 249 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 52..250
- (C) IDENTIFICATION METHOD: fasta
- (D) OTHER INFORMATION: identity 99
region 2..200
id HS7B2
vrt

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 14..250
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 24..260
id R14271
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 14..250
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98
region 25..261
id R18347
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 14..233
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 97
region 43..262
id H10233
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 14..240
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 99
region 44..270
id HSC0IE021
est

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 42..250
- (C) IDENTIFICATION METHOD: blastn
- (D) OTHER INFORMATION: identity 98

region 1..209
id HSCZSC021
est

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: 79..156
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.6
seq LFWLASGWTPAFA/YS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 269:

```
AAGTTCGCCC GTNTCCTGGC CTGACCCCCA CCAAGGCCCA TACCGCAGTA GGCTCCTCGG      60
GCTGCCCCTC GGTTGACA ATG GTC TCC AGG ATG GTC TCT ACC ATG CTA TCT      111
          Met Val Ser Arg Met Val Ser Thr Met Leu Ser
          -25                               -20

GGC CTA CTG TTT TGG CTG GCA TCT GGA TGG ACT CCA GCA TTT GCT TAC      159
Gly Leu Leu Phe Trp Leu Ala Ser Gly Trp Thr Pro Ala Phe Ala Tyr
-15          -10          -5          1

AGC CCC CGG ACC CCT GAC CGG GTC TCA GAA GCA GAT ATC CAG AGG CTG      207
Ser Pro Arg Thr Pro Asp Arg Val Ser Glu Ala Asp Ile Gln Arg Leu
          5          10          15

CTT CAT GGT GTT ATG GAG CAA TTG GGC ATT GCC AGG CCC CGG      249
Leu His Gly Val Met Glu Gln Leu Gly Ile Ala Arg Pro Arg
          20          25          30
```

(2) INFORMATION FOR SEQ ID NO: 270:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 316 base pairs
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: DOUBLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: CDNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 212..311
- (C) IDENTIFICATION METHOD: fasta
- (D) OTHER INFORMATION: identity 93
region 1..101
id HSSCOASN
vrt

(ix) FEATURE:

- (A) NAME/KEY: other
- (B) LOCATION: 243..311
- (C) IDENTIFICATION METHOD: blastn

(D) OTHER INFORMATION: identity 94
region 60..128
id AA135265
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 187..245
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 91
region 5..63
id AA135265
est

(ix) FEATURE:

(A) NAME/KEY: other
(B) LOCATION: 269..311
(C) IDENTIFICATION METHOD: blastn
(D) OTHER INFORMATION: identity 100
region 49..91
id R58602
est

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: 179..250
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.8
seq ATMVSGSSGLAXA/RL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 270:

```

AGAGTTATTA TCTGCSTSTC CGATAGGATG CCTCTTTGTC TTCACCTGCC ATTCCCGCTG      60
TTTCGTGAAG AATCCTCTGT AAAGGGAAAT TTGTTCAAGC GACTGCTGTG GCCACCCTCT      120
GCCTCCTCCG GCCTCTGCCC CTGGGAGGTC CCCGGGGGCC TGGGAGTGTC ATTGGCGT      173
ATG ACC GCA ACC CTT GCC GCT GCC GCT GAC ATC GCT ACC ATG GTC TCC      226
Met Thr Ala Thr Leu Ala Ala Ala Ala Asp Ile Ala Thr Met Val Ser
          -20                      -15                      -10

GGC AGC AGC GGC CTC GCC GNC GCC CGT CTC CTG TCG CGC AST TCC TCC      274
Gly Ser Ser Gly Leu Ala Xaa Ala Arg Leu Leu Ser Arg Xaa Ser Ser
          -5                      1                      5

TGC CGC AGA ATG GAA TTC GGC ATT GTT CCT ACA CAG CCA CGG      316
Cys Arg Arg Met Glu Phe Gly Ile Val Pro Thr Gln Pro Arg
          10                      15                      20

```

(2) INFORMATION FOR SEQ ID NO: 271:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -14..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 10.8
seq LLLLGLCLGLSLC/VG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 271:

```

Met Leu Leu Leu Leu Gly Leu Cys Leu Gly Leu Ser Leu Cys Val Gly
      -10                      -5                      1
Ser Gln Glu Glu Ala Gln Ser Trp Gly His Ser Ser Glu Gln Asp Gly
      5                      10                      15
Leu Arg Val Pro Arg
      20

```

(2) INFORMATION FOR SEQ ID NO: 272:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 79 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -26..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 10.8
seq VLLFFVLLGMSQA/GS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 272:

```

Met Glu Asn Gly Gly Ala Gly Thr Leu Gln Ile Arg Gln Val Leu Leu
  -25                      -20                      -15
Phe Phe Val Leu Leu Gly Met Ser Gln Ala Gly Ser Glu Thr Gly Asn
 -10                      -5                      1                      5
Phe Leu Val Met Glu Glu Leu Gln Ser Gly Ser Phe Val Gly Asn Leu
      10                      15                      20
Ala Lys Thr Leu Gly Leu Glu Val Ser Glu Leu Ser Ser Arg Gly Ala
      25                      30                      35

```

Arg Val Val Ser Asn Asp Asn Lys Glu Cys Leu Gln Leu Asp Thr
 40 45 50

(2) INFORMATION FOR SEQ ID NO: 273:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 129 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -126..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10
seq LKLLFLSTELQA/SQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 273:

Met Arg Gly Pro Glu Pro Gly Pro Gln Pro Thr Met Glu Gly Asp Val
 -125 -120 -115

Leu Asp Thr Leu Glu Ala Leu Gly Tyr Lys Gly Pro Leu Leu Glu Glu
 -110 -105 -100 -95

Gln Ala Leu Thr Lys Ala Ala Glu Gly Gly Leu Ser Ser Pro Glu Phe
 -90 -85 -80

Ser Glu Leu Cys Ile Trp Leu Gly Ser Gln Ile Lys Ser Leu Cys Asn
 -75 -70 -65

Leu Glu Glu Ser Ile Thr Ser Ala Gly Arg Asp Asp Leu Glu Ser Phe
 -60 -55 -50

Gln Leu Glu Ile Ser Gly Phe Leu Lys Glu Met Ala Cys Pro Tyr Ser
 -45 -40 -35

Val Leu Ile Ser Gly Asp Ile Lys Asp Arg Leu Lys Lys Lys Glu Asp
 -30 -25 -20 -15

Cys Leu Lys Leu Leu Leu Phe Leu Ser Thr Glu Leu Gln Ala Ser Gln
 -10 -5 1

Ile

(2) INFORMATION FOR SEQ ID NO: 274:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 44 amino acids
- (B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -26..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 9.6
seq WLIALASWSWALC/RI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 274:

```
Met Glu Lys Ser Trp Met Leu Trp Asn Phe Val Glu Arg Trp Leu Ile
  -25                      -20                      -15

Ala Leu Ala Ser Trp Ser Trp Ala Leu Cys Arg Ile Ser Leu Leu Pro
-10                      -5                      1                      5

Leu Ile Val Thr Phe His Leu Tyr Gly Gly Ser Gly
      10                      15
```

(2) INFORMATION FOR SEQ ID NO: 275:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 89 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -36..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 9.5
seq LGLLLLARHWCIA/GV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 275:

```
Met Gln Gln Thr Arg Thr Glu Ala Val Ala Gly Ala Phe Ser His Cys
  -35                      -30                      -25

Leu Gly Phe Cys Gly Met Arg Leu Gly Leu Leu Leu Ala Arg His
-20                      -15                      -10                      -5

Trp Cys Ile Ala Gly Val Phe Pro Gln Lys Phe Asp Gly Asp Ser Ala
      1                      5                      10
```

Tyr Val Gly Met Ser Asp Gly Asn Pro Glu Leu Leu Ser Thr Ser Gln
 15 20 25
 Thr Tyr Asn Gly Gln Ser Glu Asn Asn Glu Asp Tyr Glu Ile Pro Pro
 30 35 40
 Ile Thr Pro Pro Asn Leu Pro Glu Ala
 45 50

(2) INFORMATION FOR SEQ ID NO: 276:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 53 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.1
seq LVVFLLLPLASGP/QV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 276:

Met Glu Lys Gly Asn Ala Phe Leu Lys Asn Arg Leu Val Val Phe Leu
 -20 -15 -10
 Leu Leu Pro Leu Ala Ser Gly Pro Gln Val Lys Arg Lys Ser Glu Ile
 -5 1 5
 Thr Lys Leu Ile Lys Ala Thr Arg Ile Ile Cys Leu Phe Asn Lys Phe
 10 15 20
 Ser Arg Gly Asn Gly
 25

(2) INFORMATION FOR SEQ ID NO: 277:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 79 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9
seq LLMLIVFHAASMA/LQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 277:

```

Met Phe Pro Phe Asn Gln Ala Gly Leu Pro Thr Leu Leu Met Leu Ile
      -20                      -15                      -10

Val Phe His Ala Ala Ser Met Ala Leu Gln Arg Leu Phe Leu Phe Ala
      -5                      1                      5

Leu Val Trp His Ser Lys Pro Ser Gly Leu Met Thr Gly Lys Leu Glu
      10                      15                      20

Ser Gln Ile Pro His Glu Lys Leu Thr His Ile Ser Val Met His Gly
      25                      30                      35                      40

Pro Leu Ser Ser His His Ser Tyr Thr His Ile His Leu Phe Leu
      45                      50                      55

```

(2) INFORMATION FOR SEQ ID NO: 278:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 99 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -76..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.8
seq SLLLWMSSLPSLG/EK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 278:

```

Met Thr Ser Arg Ser Leu Arg Arg Cys Ser Cys Leu Arg Val Thr His
      -75                      -70                      -65

Asn Lys Glu Ile Leu Ala Ser Thr Val Ser Leu Gly Val Glu Gly Tyr
      -60                      -55                      -50                      -45

Met Leu Gly Gly Gly Ser Arg Ile Asn Ser Ser Asn Leu Asn Asp Gly
      -40                      -35                      -30

Glu Glu Glu Cys Ser Pro Asp Ser Leu Leu Val Trp Lys Lys Lys Ser
      -25                      -20                      -15

```

Leu Leu Leu Trp Met Ser Ser Leu Pro Ser Leu Gly Glu Lys Tyr Phe
 -10 -5 1
 Lys Arg Ile Leu Arg Trp Arg Glu His Trp Lys Ser Ser Gly Pro Ile
 5 10 15 20
 Pro Leu Trp

(2) INFORMATION FOR SEQ ID NO: 279:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 68 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -53..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.8
seq ILLLLTVLPCIXM/GQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 279:

Met Trp Thr Ala Ser Ala Met Asp Phe Arg Thr Cys Ile Ala Ser Xaa
 -50 -45 -40
 Leu Pro Ala Leu Cys Tyr Val Gln Ala Cys Arg Ala Leu Met Ile Ala
 -35 -30 -25
 Ala Ser Val Leu Gly Leu Pro Ala Ile Leu Leu Leu Leu Thr Val Leu
 -20 -15 -10
 Pro Cys Ile Xaa Met Gly Gln Glu Pro Gly Val Ala Lys Tyr Arg Xaa
 -5 1 5 10
 Ala Gln Leu Ala
 15

(2) INFORMATION FOR SEQ ID NO: 280:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -45..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8.5
seq FALLSLSHPTCQA/GA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 280:

Met Gly Pro Pro Pro Thr His Ile Lys Tyr Leu His Leu Asn Ile Tyr
-45 -40 -35 -30
Cys Asn Gly Lys Ser Thr Ala Pro Gly Ile Arg Ser His Ser Leu Gly
-25 -20 -15
Phe Ala Leu Leu Ser Leu Ser His Pro Thr Cys Gln Ala Gly Ala Pro
-10 -5 1
Ala Ala Ala Leu Pro Ser Leu Trp Ser Trp Cys Ser Arg Gly Ala Arg
5 10 15
Val Arg Val Gly Arg Met Leu Ser His Leu Tyr Thr Cys Gly Trp Tyr
20 25 30 35
Asp His Asn Pro His Gly
40

(2) INFORMATION FOR SEQ ID NO: 281:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN.

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -16..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8.5
seq LLTFLAFTTLLFA/PP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 281:

Met Phe Cys Leu Leu Thr Phe Leu Ala Phe Thr Thr Leu Leu Phe Ala
-15 -10 -5
Pro Pro Trp
1

(2) INFORMATION FOR SEQ ID NO: 282:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -29..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.4
seq LKCLLAVLSSLFA/AI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 282:

```

Met His Cys Gly Ser Thr Pro Gly Leu Cys Pro Cys Trp Val Pro Phe
      -25                      -20                      -15

Leu Lys Cys Leu Leu Ala Val Leu Ser Ser Leu Phe Ala Ala Ile Ser
      -10                      -5                      1

Val Asp Arg Leu Tyr Leu Ser Phe Cys Ser Asn Cys Ser Glu Ile Tyr
      5                      10                      15

Leu Trp Pro Pro Ser Phe Pro Ala Pro Pro Ser Pro Val Val Leu Leu
      20                      25                      30                      35

Val Phe Leu Cys Pro His Gly Thr Ser Leu Ser Phe Leu Lys Leu Pro
      40                      45                      50

```

(2) INFORMATION FOR SEQ ID NO: 283:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.3

seq VCSALLLLGIVSS/KP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 283:

Met Asn Leu Val Cys Ser Ala Leu Leu Leu Leu Gly Ile Val Ser Ser
-15 -10 -5

Lys Pro Tyr Met Arg Lys Arg
1 5

(2) INFORMATION FOR SEQ ID NO: 284:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -35..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.3
seq AAMLIGLLAWLQT/VP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 284:

Met Ser Val Leu Asp Asp Arg Gln Arg Asp Ile Leu Val Val Gln Lys
-35 -30 -25 -20

Arg His Ser Ser Leu Glu Ala Ala Met Leu Ile Gly Leu Leu Ala Trp
-15 -10 -5

Leu Gln Thr Val Pro Ala His Gly Cys Gln Phe Leu Pro Ile Arg
1 5 10

(2) INFORMATION FOR SEQ ID NO: 285:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -20..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 8.3
 seq LLIICHYLPLSLC/IP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 285:

Met Gly Val Asn Gly Arg Arg Leu Leu Ile Ile Cys His Tyr Leu Pro
 -20 -15 -10 -5
 Leu Ser Leu Cys Ile Pro Ile Pro Ser His Ile Asn Ser Leu Pro Arg
 1 5 10
 Asn Thr Pro Pro Val Arg
 15

(2) INFORMATION FOR SEQ ID NO: 286:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 43 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -31..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 8.2
 seq LECLLLYLAESSG/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 286:

Met Lys Leu Arg Glu Cys Pro Ala Leu Arg Trp Ser Gln Leu Ser Gln
 -30 -25 -20
 His Lys Leu Glu Cys Leu Leu Leu Tyr Leu Ala Glu Ser Ser Gly Leu
 -15 -10 -5 1
 Arg Thr Gly Asn Val Gly Val Leu His Pro Arg
 5 10

(2) INFORMATION FOR SEQ ID NO: 287:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 136 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -109..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 8.2
seq LLRLPQLPPXCSA/GE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 287:

Met Asp Pro Arg Gly Ile Leu Lys Ala Phe Pro Lys Arg Gln Lys Ile
-105 -100 -95
His Ala Asp Ala Ser Ser Lys Val Leu Ala Lys Ile Pro Arg Arg Glu
-90 -85 -80
Glu Gly Glu Glu Ala Glu Glu Trp Leu Ser Ser Leu Arg Ala His Val
-75 -70 -65
Val Arg Thr Gly Ile Gly Arg Ala Arg Ala Glu Leu Phe Glu Lys Gln
-60 -55 -50
Ile Val Gln His Gly Gly Gln Leu Cys Pro Ala Gln Gly Pro Gly Val
-45 -40 -35 -30
Thr His Ile Val Val Asp Glu Gly Met Asp Tyr Glu Arg Ala Leu Arg
-25 -20 -15
Leu Leu Arg Leu Pro Gln Leu Pro Pro Xaa Cys Ser Ala Gly Glu Val
-10 -5 1
Ser Leu Ala Glu Leu Val Pro Ser Gly Glu Glu Ala Gly Gly Cys Ser
5 10 15
Trp Ile Gln His Leu His Pro Ser
20 25

(2) INFORMATION FOR SEQ ID NO: 288:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -21..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 8
seq LFLVAVLVKVAEA/RK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 288:

Met Phe Trp Lys Leu Ser Leu Ser Leu Phe Leu Val Ala Val Leu Val
-20 -15 -10

Lys Val Ala Glu Ala Arg Lys Asn Arg Ser
-5 1 5

(2) INFORMATION FOR SEQ ID NO: 289:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -18..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.9
seq LFSLLVLQSMATG/AT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 289:

Met Ala Phe Leu Gly Leu Phe Ser Leu Leu Val Leu Gln Ser Met Ala
-15 -10 -5

Thr Gly Ala Thr Phe Pro Glu Glu Ala Pro
1 5

(2) INFORMATION FOR SEQ ID NO: 290:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 70 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -18..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.9
 seq LFSLLVLQSMATG/AT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 290:

```

Met Ala Phe Leu Gly Leu Phe Ser Leu Leu Val Leu Gln Ser Met Ala
      -15                      -10                      -5

Thr Gly Ala Thr Phe Pro Glu Glu Ala Ile Ala Asp Leu Ser Val Asn
      1                      5                      10

Met Tyr Asn Arg Leu Arg Ala Val Gly Ser Trp Arg Arg Glu Gly Ala
      15                      20                      25                      30

Ser Arg Gln Ile Ala Ser Cys Leu Pro Ala Phe Leu Leu His Leu Pro
      35                      40                      45

Leu Thr His Thr His Gly
      50
  
```

(2) INFORMATION FOR SEQ ID NO: 291:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 103 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -55..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 7.8
 seq ALLVALLFTLIHR/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 291:

```

Met Ser Phe Ser Leu Asn Phe Thr Leu Pro Ala Asn Thr Thr Ser Ser
-55                      -50                      -45                      -40

Pro Val Thr Gly Gly Lys Glu Thr Asp Cys Gly Pro Ser Leu Gly Leu
      -35                      -30                      -25

Ala Ala Gly Ile Pro Leu Leu Val Ala Thr Ala Leu Leu Val Ala Leu
      -20                      -15                      -10

Leu Phe Thr Leu Ile His Arg Arg Arg Ser Ser Ile Glu Ala Met Glu
      -5                      1                      5

Glu Ser Asp Arg Pro Cys Glu Ile Ser Glu Ile Asp Asp Asn Pro Lys
  
```

10 15 20 25
Ile Ser Glu Asn Pro Arg Arg Ser Pro Thr His Glu Lys Asn Thr Met
 30 35 40
Gly Ala Gln Glu Ala Arg Trp
 45

(2) INFORMATION FOR SEQ ID NO: 292:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 82 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -80..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.7
seq LVLFLSLALLVTP/TS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 292:

```

Met Ser Thr Trp Tyr Leu Ala Leu Asn Lys Ser Tyr Lys Asn Lys Asp
-80 -75 -70 -65

Ser Val Arg Ile Tyr Leu Ser Leu Cys Thr Val Ser Ile Lys Phe Thr
-60 -55 -50

Tyr Phe His Asp Ile Gln Thr Asn Cys Leu Thr Thr Trp Lys His Ser
-45 -40 -35

Arg Cys Arg Phe Tyr Trp Ala Phe Gly Gly Ser Ile Leu Gln His Ser
-30 -25 -20

Val Asp Pro Leu Val Leu Phe Leu Ser Leu Ala Leu Leu Val Thr Pro
-15 -10 -5

Thr Ser
1

```

(2) INFORMATION FOR SEO ID NO: 293:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 43 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -19..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.7
seq LQLLCCIFTLVLQ/HY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 293:

Met Ala Ile Gly Ile Ser Leu Gln Leu Leu Cys Cys Ile Phe Thr Leu
-15 -10 -5

Val Leu Gln His Tyr Leu Leu Gly Ser His Pro Tyr Ile Thr Cys Ile
1 5 10

His Ser Gln Leu Leu Leu Asp Ile Gln Gln Gln
15 20

(2) INFORMATION FOR SEQ ID NO: 294:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 74 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -19..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.6
seq LLNLLLLSLFAGL/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 294:

Met Gln Ala Thr Ser Asn Leu Leu Asn Leu Leu Leu Ser Leu Phe
-15 -10 -5

Ala Gly Leu Asp Pro Ser Lys Asn Lys Lys Arg Gly Ser Ser Phe Ser
1 5 10

Phe Lys Phe Pro Leu Leu Asp Asp Thr Pro Phe Leu Xaa Ser Arg Ile
15 20 25

Glu Asn Ser Ala Thr His His Leu His Tyr Gly Leu Asn Met Ile Leu
30 35 40 45

Trp Val Asn Trp Lys Pro Lys Leu Thr Leu
50 55

(2) INFORMATION FOR SEQ ID NO: 295:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -31..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.6
seq VTLLCGWPGSHWC/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 295:

Met Met Lys Trp Lys Pro Glu Asp Leu Gly Ser Val Pro Cys Glu Ala
-30 -25 -20
Phe Ser Val Thr Leu Leu Cys Gly Trp Pro Gly Ser His Trp Cys Ala
-15 -10 -5 1
Pro Pro

(2) INFORMATION FOR SEQ ID NO: 296:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 78 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -19..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.6
seq LLNLLLLSLFAGL/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 296:

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Ala | Thr | Ser | Asn | Leu | Leu | Asn | Leu | Leu | Leu | Leu | Ser | Leu | Phe |
| | | | | -15 | | | | | -10 | | | | | -5 | |
| Ala | Gly | Leu | Asp | Pro | Ser | Lys | Thr | Gln | Ile | Ser | Pro | Lys | Glu | Gly | Trp |
| | | | 1 | | | | 5 | | | | | 10 | | | |
| Gln | Val | Tyr | Ser | Ser | Ala | Gln | Asp | Pro | Asp | Gly | Arg | Cys | Ile | Cys | Thr |
| | 15 | | | | | 20 | | | | | 25 | | | | |
| Val | Val | Ala | Pro | Glu | Gln | Asn | Leu | Cys | Ser | Arg | Asp | Ala | Lys | Ser | Arg |
| | 30 | | | | 35 | | | | | 40 | | | | | 45 |
| Gln | Leu | Arg | Gln | Leu | Leu | Glu | Lys | Val | Gln | Asn | Met | Ser | Arg | | |
| | | | | 50 | | | | | 55 | | | | | | |

(2) INFORMATION FOR SEQ ID NO: 297:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -48..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.5
seq FVILLLLFIFTVVS/LV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 297:

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Ser | His | Trp | Asn | Glu | Thr | Thr | Thr | Ser | Val | Tyr | Gln | Tyr |
| | | | -45 | | | | | -40 | | | | | -35 | | |
| Leu | Gly | Phe | Gln | Val | Gln | Lys | Ile | Tyr | Pro | Phe | His | Asp | Asn | Trp | Asn |
| | | -30 | | | | | -25 | | | | | -20 | | | |
| Thr | Ala | Cys | Phe | Val | Ile | Leu | Leu | Leu | Phe | Ile | Phe | Thr | Val | Val | Ser |
| | -15 | | | | | -10 | | | | | -5 | | | | |
| Leu | Val | Val | Leu | Ala | Phe | Leu | Tyr | Glu | Val | Leu | Asp | Cys | Cys | Cys | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Lys | Asn | Lys | Thr | Val | Lys | Asp | Leu | Lys | Ser | Glu | Pro | Asn | Pro | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |

(2) INFORMATION FOR SEQ ID NO: 298:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 amino acids

(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -33..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.4
seq ITCCVLLLLNC SG/VW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 298:

```
Met Leu Trp Phe Ser Gly Val Gly Ala Leu Ala Glu Arg Tyr Cys Arg
      -30                -25                -20

Arg Ser Pro Gly Ile Thr Cys Cys Val Leu Leu Leu Leu Asn Cys Ser
      -15                -10                -5

Gly Val Trp
      1
```

(2) INFORMATION FOR SEQ ID NO: 299:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -25..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 7.3
seq LIFFLNVTQLVRG/RG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 299:

```
Met Leu Phe Leu Gln Met Gly Lys Gln Ser Trp Thr Leu Ile Phe Phe
-25                -20                -15                -10

Leu Asn Val Thr Gln Leu Val Arg Gly Arg Gly Pro Gly Gly Arg
      -5                1                5
```


(2) INFORMATION FOR SEQ ID NO: 300:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 36 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -27..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.2
seq LLLGLCSPPXXSL/AS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 300:

Met Glu Leu Arg Xaa Xaa Pro Pro Gly Gly Arg Glu Val Gln Leu Leu
-25 -20 -15
Leu Gly Leu Cys Ser Pro Pro Xaa Xaa Ser Leu Ala Ser Phe Pro Lys
-10 -5 1 5
Ala Ala Gln Met

(2) INFORMATION FOR SEQ ID NO: 301:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -14..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq LWSLLSSSGSHFG/IP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 301:

Met Leu Trp Ser Leu Leu Ser Ser Ser Gly Ser His Phe Gly Ile Pro
-10 -5 1
His His Thr Phe Pro Gln Glu Gly
5 10

(2) INFORMATION FOR SEQ ID NO: 302:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 112 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -52..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq SVWLCLLCYFAFP/FQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 302:

```

Met Asp Ile Ser Gly Leu Ile Pro Gly Leu Val Ser Thr Phe Ile Leu
   -50                               -45                       -40

Leu Ser Xaa Ser Asp His Tyr Gly Arg Lys Phe Pro Met Ile Leu Ser
  -35                               -30                       -25

Ser Val Gly Ala Leu Ala Thr Ser Val Trp Leu Cys Leu Leu Cys Tyr
 -20                               -15                       -10                       -5

Phe Ala Phe Pro Phe Gln Leu Leu Ile Ala Ser Thr Phe Ile Gly Ala
      1                               5                       10

Phe Xaa Gly Asn Tyr Thr Thr Phe Trp Gly Ala Cys Phe Ala Tyr Ile
    15                               20                       25

Val Asp Gln Cys Lys Glu Xaa Xaa Gln Lys Thr Ile Arg Ile Ala Ile
   30                               35                       40

Ile Asp Phe Leu Leu Gly Leu Val Thr Gly Leu Thr Val Leu Ser Ser
  45                               50                       55                       60

```

(2) INFORMATION FOR SEQ ID NO: 303:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 36 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -30..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7
seq LFVILLITSLIFC/SL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 303:

```

Met Xaa Val Phe Phe Ser Lys Asn Arg Phe Glu Met Tyr Phe Ser Leu
-30                -25                -20                -15

Leu Leu Phe Val Ile Leu Leu Ile Thr Ser Leu Ile Phe Cys Ser Leu
                -10                -5                1

Tyr Val Ala Arg
                5

```

(2) INFORMATION FOR SEQ ID NO: 304:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.9
seq SLSLLASHHSVSC/SN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 304:

```

Met Pro Val Pro Ala Cys Trp Ile Ser Ser Ser Leu Ser Leu Leu Ala
                -20                -15                -10

Ser His His Ser Val Ser Cys Ser Asn Ile Phe Leu Asn Phe Asn Pro
                -5                1                5

Asp Arg
10

```

(2) INFORMATION FOR SEQ ID NO: 305:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 59 amino acids
- (B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -21..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.9
seq LLACGSLLPGLWQ/HL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 305:

```

Met Cys Pro Val Phe Ser Lys Gln Leu Leu Ala Cys Gly Ser Leu Leu
-20                               -15                -10

Pro Gly Leu Trp Gln His Leu Thr Ala Asn His Trp Pro Pro Phe Ser
-5                               1                    5                10

Xaa Phe Leu Cys Thr Val Cys Ser Gly Ser Ser Glu Gln Ile Ser Glu
15                               20                25

Tyr Thr Ala Ser Ala Thr Pro Pro Leu Cys Leu
30                               35

```

(2) INFORMATION FOR SEQ ID NO: 306:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 128 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -76..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 6.9
seq LLPLSAWPPWAWH/HH

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 306:

```

Met Ala Leu Thr Ile His Gly Glu Arg Met Arg Pro Asp Trp Glu Ser
-75                               -70                -65

Pro Trp Ile Thr Ser Ser Gln Ala Gln Ser Leu Ser Leu Gly Gly Ser
-60                               -55                -50                -45

```

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Arg | Phe | Arg | Cys | Gly | His | Leu | Cys | Val | Pro | Glu | Val | Pro |
| | | -90 | | | | | -85 | | | | | -80 | | | |
| Arg | Gly | Pro | Ala | Ser | His | Ala | Glu | Gly | Gly | Gly | Gly | Arg | Leu | Ser | Arg |
| | -75 | | | | | -70 | | | | | -65 | | | | |
| Lys | Ala | Ala | His | Gln | Ala | Gln | Leu | Cys | Trp | Arg | Ala | Gly | Gly | Asp | Gly |
| -60 | | | | | -55 | | | | | -50 | | | | | -45 |
| Arg | Gly | Asn | Phe | Asn | Pro | Met | Asn | Phe | Leu | Val | Ala | Gly | Thr | Phe | Ala |
| | | | | -40 | | | | | -35 | | | | | -30 | |
| Ser | Ser | Cys | His | Ser | Pro | Pro | Leu | Leu | Trp | Ser | Leu | Pro | Pro | Arg | Ile |
| | | | -25 | | | | | -20 | | | | | -15 | | |
| Leu | Ile | Ala | Ser | Ser | Leu | Pro | Thr | Leu | Ser | His | Pro | Ala | Pro | Gly | |
| | | -10 | | | | | -5 | | | | | 1 | | | |

(2) INFORMATION FOR SEQ ID NO: 308:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -29..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.8
seq VLSLICSCFYTQP/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 308:

```

Met Ala Ser Thr Ile Ser Ala Tyr Lys Glu Lys Met Lys Glu Leu Ser
      -25                      -20                      -15

Val Leu Ser Leu Ile Cys Ser Cys Phe Tyr Thr Gln Pro His Pro Asn
      -10                      -5                      1

Thr Val Tyr Gln Tyr Gly Asp Met Glu Val Lys Gln Leu Asp Lys Arg
      5                      10                      15

Ala Ser Gly Gln Ser Phe Glu Val Ile Leu Lys Ser Pro Ser Asp Leu
      20                      25                      30                      35

Ser Pro Glu Ser Pro Met Leu Ser Ser Pro Pro Lys Lys Lys Asp Thr
      40                      45                      50

Ser Leu Glu Glu Leu Gln Lys
      55

```

(2) INFORMATION FOR SEQ ID NO: 309:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 120 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -114..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 6.7
seq LIPMAILLGQTQS/NS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 309:

```

Met Leu Gln Val Tyr Gly Lys Pro Val Tyr Gln Gly His Arg Ser Thr
      -110                      -105                      -100

Leu Lys Lys Gly Pro Tyr Leu Arg Phe Asn Ser Pro Ser Pro Lys Ser
      -95                      -90                      -85

Arg Pro Gln Arg Pro Lys Val Ile Glu Arg Val Lys Gly Thr Lys Val
      -80                      -75                      -70

Lys Ser Ile Arg Thr Gln Thr Asp Phe Tyr Ala Thr Lys Pro Lys Lys
      -65                      -60                      -55

Met Asp Ser Lys Met Lys His Ser Val Pro Val Leu Pro His Gly Asp
      -50                      -45                      -40                      -35

Gln Gln Tyr Leu Phe Ser Pro Ser Arg Glu Met Pro Thr Phe Ser Gly
      -30                      -25                      -20

Thr Leu Glu Gly His Leu Ile Pro Met Ala Ile Leu Leu Gly Gln Thr
      -15                      -10                      -5

Gln Ser Asn Ser Asp Thr Met Pro
      1                      5

```

(2) INFORMATION FOR SEQ ID NO: 310:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 127 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -118...-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.7
seq LLFAKLFGHLTSA/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 310:

```

Met Ser Val Leu Glu Ile Ser Gly Met Ile Met Asn Arg Val Asn Ser
      -115                      -110                      -105

His Ile Pro Gly Ile Gly Tyr Gln Ile Phe Gly Asn Ala Val Ser Leu
      -100                      -95                      -90

```

```

Ile Leu Gly Leu Thr Pro Phe Val Phe Arg Leu Ser Gln Ala Thr Asp
-85                               -80                               -75

Leu Glu Gln Leu Thr Ala His Ser Ala Ser Glu Leu Tyr Val Ile Ala
-70                               -65                               -60                               -55

Phe Gly Ser Asn Glu Asp Val Ile Val Leu Ser Met Val Ile Ile Ser
                               -50                               -45                               -40

Phe Val Val Arg Val Ser Leu Val Trp Ile Phe Phe Phe Leu Leu Cys
                               -35                               -30                               -25

Val Ala Glu Arg Thr Tyr Lys Gln Arg Leu Leu Phe Ala Lys Leu Phe
-20                               -15                               -10

Gly His Leu Thr Ser Ala Arg Arg Ala Arg Lys Ser Glu Val Pro
-5                               1                               5

```

(2) INFORMATION FOR SEQ ID NO: 311:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 71 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -69..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.7
seq FFKLLLLGAMCSG/AR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 311:

```

Met Cys Lys Gly Ile Lys Ala Gly Asp Thr Cys Glu Lys Leu Val Gly
-65                               -60                               -55

Tyr Ser Ala Val Tyr Arg Val Cys Phe Gly Met Ala Cys Phe Phe Phe
-50                               -45                               -40

Ile Phe Cys Leu Leu Thr Leu Lys Ile Asn Asn Ser Lys Ser Cys Arg
-35                               -30                               -25

Ala His Ile His Asn Gly Phe Trp Phe Phe Lys Leu Leu Leu Gly
-20                               -15                               -10

Ala Met Cys Ser Gly Ala Arg
-5                               1

```


(2) INFORMATION FOR SEQ ID NO: 312:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 114 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -104..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.6
seq HFSHVVFHPTWA/QQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 312:

```

Met Ser Asp Ser Ala Gly Gly Arg Ala Gly Leu Arg Arg Tyr Pro Lys
                -100                -95                -90

Leu Pro Val Trp Val Val Glu Asp His Gln Glu Val Leu Pro Phe Ile
                -85                -80                -75

Tyr Arg Ala Ile Gly Ser Lys His Leu Pro Ala Ser Asn Val Ser Phe
                -70                -65                -60

Leu His Phe Asp Ser His Pro Asp Leu Leu Ile Pro Val Asn Met Pro
                -55                -50                -45

Ala Asp Thr Val Phe Asp Lys Glu Thr Leu Phe Gly Glu Leu Ser Ile
-40                -35                -30                -25

Glu Asn Trp Ile Met Pro Ala Val Tyr Ala Gly His Phe Ser His Val
                -20                -15                -10

Val Trp Phe His Pro Thr Trp Ala Gln Gln Ile Arg Glu Gly Arg His
                -5                1                5

His Phe
    10

```

(2) INFORMATION FOR SEQ ID NO: 313:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 109 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -47..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.3
seq SSCVLLTALVALA/AY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 313:

```

Met Ser Ser Cys Arg Gly Gln Lys Val Ala Gly Gly Leu Arg Val Val
  -45                      -40                      -35

Ser Pro Phe Pro Leu Cys Gln Pro Ala Gly Glu Pro Ser Arg Gly Lys
  -30                      -25                      -20

Met Arg Ser Ser Cys Val Leu Leu Thr Ala Leu Val Ala Leu Ala Ala
  -15                      -10                      -5                      1

Tyr Tyr Val Tyr Ile Pro Leu Pro Gly Ser Val Ser Asp Pro Trp Lys
      5                      10                      15

Leu Met Leu Leu Asp Ala Thr Phe Arg Gly Ala Xaa Xaa Xaa Ser Xaa
      20                      25                      30

Leu Val Xaa Tyr Leu Gly Leu Ser Xaa His Leu Leu Ala Leu Xaa Xaa
      35                      40                      45

Xaa Leu Phe Leu Leu Ala Lys Lys Ala Arg Gly Leu Leu
      50                      55                      60

```

(2) INFORMATION FOR SEQ ID NO: 314:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 72 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -42..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.1
seq DLAVALSLLPAWT/ES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 314:

```

Met Ile Ile Pro Phe Lys Ile Lys Asn Leu Gly Gly Arg Val Leu Leu
  -40                      -35                      -30

Ser Gly Arg Glu Met Phe Pro Ala Ser Val Arg Ala Pro Asp Leu Ala

```

-25 -20 -15
 Val Ala Leu Ser Leu Leu Pro Ala Trp Thr Glu Ser Pro Thr Arg Gly
 -10 -5 1 5
 Ser His Gln Ser Gln Ala Arg Ala His Ser Arg Ala Leu Arg Lys Gln
 10 15 20
 Ser Arg Asn Thr Arg Ser Pro Arg
 25 30

(2) INFORMATION FOR SEQ ID NO: 315:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 60 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -53..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6
seq ALILLLLAQKGPS/XF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 315:

Met Val Cys Ser Ala Pro Arg Lys Ile Val Val Arg Ala Phe Ile Thr
 -50 -45 -40
 Ile Ile Phe Ile Tyr Tyr Ala Ile Lys Lys Arg Ala Asn Glu Pro Ala
 -35 -30 -25
 Ala Tyr Leu Met Leu Lys Pro Glu Ala Leu Ile Leu Leu Leu Ala
 -20 -15 -10
 Gln Lys Gly Pro Ser Xaa Phe Leu Leu Val Trp Arg
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 316:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 60 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -40..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq VCSALCSLGEVRP/XE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 316:

```
Met Thr Glu Ser Ser Met Lys Lys Leu Ala Ser Thr Leu Leu Asp Ala
-40                -35                -30                -25

Ile Thr Asp Lys Asp Pro Leu Val Gln Glu Gln Val Cys Ser Ala Leu
          -20                -15                -10

Cys Ser Leu Gly Glu Val Arg Pro Xaa Glu Thr Leu Arg Ala Cys Glu
          -5                1                5

Glu Tyr Leu Arg Xaa Met Thr Ser Trp His Thr Arg
  10                15                20
```

(2) INFORMATION FOR SEQ ID NO: 317:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 59 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -43..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9
seq VFLFHCTSGGLSSC/KC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 317:

```
Met Gln Glu Thr Asp Cys Asn Lys Arg Trp Gly Arg Gly Leu Gly Gly
          -40                -35                -30

Leu Trp Ser Glu Thr Gly Arg Arg Phe His Cys Lys Ser Phe Val Phe
          -25                -20                -15

Leu Phe His Cys Thr Ser Gly Leu Ser Ser Cys Lys Cys Ser Lys Lys
          -10                -5                1                5

His Xaa Lys Tyr Cys Phe Cys Phe Val Ala Ser
          10                15
```

Ser Pro Ala Phe Leu Ala Val Ala Gly Pro Gly Trp Ala Arg Pro Gly
 -10 -5 1

Cys Xaa Leu Arg Thr Lys Tyr Asp Ser Gln Leu Ala Arg His Leu Leu
 5 10 15

Gln Pro Gln Phe Pro Gly Leu Thr Leu Gly Thr Leu Val Gln Pro Ala
 20 25 30 35

His Trp Gly Met Gly Gly Gly Thr Gly Gly Val Leu Gly Glu Gly Gly
 40 45 50

Gly His Ser Tyr Ala Glu His Gly Thr Cys Leu Gln Ser Cys Ser Thr
 55 60 65

Asp Val Leu Xaa His Val Leu Leu Ala
 70 75

(2) INFORMATION FOR SEQ ID NO: 320:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 125 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -18..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
 seq WHFLASFFPRAGC/HG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 320:

Met Leu Gln Met Leu Trp His Phe Leu Ala Ser Phe Phe Pro Arg Ala
 -15 -10 -5

Gly Cys His Gly Ser Arg Glu Gly Asp Asp Arg Glu Val Arg Gly Thr
 1 5 10

Pro Ala Pro Ala Trp Arg Asp Gln Met Ala Ser Phe Leu Gly Lys Gln
 15 20 25 30

Asp Gly Arg Ala Glu Ala Thr Glu Lys Arg Pro Thr Ile Leu Leu Val
 35 40 45

Val Gly Pro Ala Glu Gln Phe Pro Lys Lys Ile Val Gln Ala Gly Asp
 50 55 60

Lys Asp Leu Asp Gly Gln Leu Asp Phe Glu Glu Phe Val His Tyr Leu
 65 70 75

(2) INFORMATION FOR SEQ ID NO: 318:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -17..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.8
seq VPWLSSTVSCAQG/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 318:

Met Leu Leu Glu Val Pro Trp Leu Ser Ser Thr Val Ser Cys Ala Gln
-15 -10 -5

Gly Leu Arg Leu Ala Gln His Arg Val Pro Phe Phe Tyr Ser Asn Val
1 5 10 15

Ser Leu Cys Lys Leu Leu Leu Pro Ala Xaa Leu His Gly
20 25

(2) INFORMATION FOR SEQ ID NO: 319:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 105 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -29..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.7
seq SPAFLAVAGPGWA/RP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 319:

Met Ser Gly Gly Arg Met Gln Ala Arg Cys Ser Gln Gln Ser Thr Trp
-25 -20 -15

Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ser Leu Asp Lys
 80 85 90
 Lys Asn Asp Gly Arg Ile Asp Ala Gln Glu Ile Met Gln
 95 100 105

(2) INFORMATION FOR SEQ ID NO: 321:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 37 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -20..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq SLVCLLAMGKGLG/SS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 321:

Met Tyr Ser His Pro Val Ser Ser Leu Val Cys Leu Leu Ala Met Gly
 -20 -15 -10 -5
 Lys Gly Leu Gly Ser Ser Gln Ala Leu Val Gln Pro Asp Thr Trp Pro
 1 5 10
 His Thr Ser Pro Arg
 15

(2) INFORMATION FOR SEQ ID NO: 322:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 92 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -35..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6

seq FIFMEVLGSGAFS/EV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 322:

```

Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Xaa Trp Lys Lys Gln Thr
-35          -30          -25          -20

Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val Leu Gly Ser Gly
          -15          -10          -5

Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly Lys Leu
          1          5          10

Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp Ser Ser
          15          20          25

Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu Asn Ile
          30          35          40          45

Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Gln Gly
          50          55

```

(2) INFORMATION FOR SEQ ID NO: 323:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 48 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -29..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq LLPNQSLFSLARA/VR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 323:

```

Met Met Ile Ala Val Phe Gly Asn Ala Asn Asp Arg Asn Val Leu Thr
          -25          -20          -15

Leu Leu Pro Asn Gln Ser Leu Phe Ser Leu Ala Arg Ala Val Arg Asn
          -10          -5          1

His Leu Leu Leu Glu Glu Arg Arg Leu Thr Thr Tyr Gly Val Leu Cys
          5          10          15

```

(2) INFORMATION FOR SEQ ID NO: 324:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 58 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -19..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6
seq LVVTAWFFGMCRS/KA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 324:

Met Phe Phe Glu Leu Pro Leu Val Val Thr Ala Trp Phe Phe Gly Met
 -15 -10 -5
Cys Arg Ser Lys Ala Leu Leu Gly Asn Ala Arg Ser Ala Leu Cys Leu
 1 5 10
Gln Thr Lys Ala Cys Ala Ser Ser Thr Gln Pro Asp Thr His Asn Glu
 15 20 25
His His Pro Arg Asn Pro Cys Pro Tyr Leu
 30 35

(2) INFORMATION FOR SEQ ID NO: 325:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 54 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -44..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5
seq FLLIVANVHFSQT/WV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 325:

Met Asn His Asn Ile Ile Ile Cys Val Met Tyr Ile Val Pro Phe Leu
 -40 -35 -30

Met Thr Lys Cys Leu Tyr Phe Cys His Ser Cys Lys Arg Gly Ser Phe
 -25 -20 -15

Leu Leu Ile Val Ala Asn Val His Phe Ser Gln Thr Trp Val Phe Ser
 -10 -5 1

Gly Lys Pro Tyr Lys Gly
 5 10

(2) INFORMATION FOR SEQ ID NO: 326:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 53 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -21..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5
seq LTGLCXCLQALG/LA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 326:

Met Ser Cys Gly Ser Ala Ala Ser Leu Thr Gly Leu Cys Xaa Cys Cys
 -20 -15 -10

Leu Gln Ala Leu Gly Leu Ala Trp Arg Arg Arg Gly Leu Thr Gly Pro
 -5 1 5 10

Gly Leu Pro Pro Val Leu Gln Ile Cys Cys Pro Arg Ser Leu Arg Gly
 15 20 25

Val Thr Ala Pro Thr
 30

(2) INFORMATION FOR SEQ ID NO: 327:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 68 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -46..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.4
seq VLFFVGLITNGLA/MR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 327:

Met Gln Ala Val Asp Asn Leu Thr Ser Ala Pro Gly Asn Thr Ser Leu
-45 -40 -35

Cys Thr Arg Asp Tyr Lys Ile Thr Gln Val Leu Phe Pro Leu Leu Tyr
-30 -25 -20 -15

Thr Val Leu Phe Phe Val Gly Leu Ile Thr Asn Gly Leu Ala Met Arg
-10 -5 1

Ile Phe Phe Gln Ile Arg Ser Lys Ser Asn Phe Ile Ile Phe Leu Lys
5 10 15

Asn Thr Val Lys
20

(2) INFORMATION FOR SEQ ID NO: 328:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (E) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -20..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.3
seq LCSSCCSWGPAAG/AL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 328:

Met Ala Ala Ala Met Xaa Leu Leu Cys Ser Ser Cys Cys Ser Trp Gly
-20 -15 -10 -5

Pro Ala Ala Gly Ala Leu Gln Asn Pro Gln Arg Gly
1 5

(2) INFORMATION FOR SEQ ID NO: 329:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -25..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.3
 seq SVVKVLSLRKAQA/QS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 329:

```
Met Asp Phe Ile Lys Asp Gln Ser Leu Ser His Arg Ser Val Val Lys
-25          -20          -15          -10

Val Leu Ser Leu Arg Lys Ala Gln Ala Gln Ser Ile Leu Glu
      -5              1              5
```

(2) INFORMATION FOR SEQ ID NO: 330:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 75 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -28..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.3
 seq RISCAFSLASSTA/RQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 330:

```
Met Thr Arg Pro Phe Trp Ala Ser Cys Ser Thr Trp Ala Thr Ser Arg
      -25          -20          -15

Ile Ser Cys Ala Phe Ser Leu Ala Ser Ser Thr Ala Arg Gln Thr Ser
      -10          -5              1

Ile Ala Cys Cys Ala Thr His Arg Thr Ala Trp Ala Ser Arg Pro Gly
      5              10              15              20

Pro Arg Arg Pro Trp Cys Cys Arg Tyr Ser Lys Pro Leu Thr Thr Trp
```

25

30

35

Pro Val Arg Met Met Arg Arg Glu Gly Ser Xaa
40 45

(2) INFORMATION FOR SEQ ID NO: 331:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.3
seq CAVSLTTAAVAFG/DE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 331:

Met Lys Ser Cys Ala Val Ser Leu Thr Thr Ala Ala Val Ala Phe Gly
-15 -10 -5

Asp Glu Ala Lys Lys Met Ala Glu Gly Lys Ala Ser Arg Glu Ser Glu
1 5 10 15

Glu Glu Thr

(2) INFORMATION FOR SEQ ID NO: 332:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 39 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -21..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.2
seq LSLSLICLRMSLS/LY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 332:

Met Ser Ile His Glu Cys Ala Cys Leu Ser Leu Ser Leu Ile Cys Leu
 -20 -15 -10

Arg Met Ser Leu Ser Leu Tyr Pro Pro Pro Ala Ser Met Ile Leu Leu
 -5 1 5 10

Pro Gln Thr Trp Lys Pro Arg
 15

(2) INFORMATION FOR SEQ ID NO: 333:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 42 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -15..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.2
seq SGLSFLSVFSLWC/EP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 333:

Met Leu Ser Gly Leu Ser Phe Leu Ser Val Phe Ser Leu Trp Cys Glu
 -15 -10 -5 1

Pro Thr Leu Pro Ala Leu Gly Asn Gly Ser Val Leu Gly Val Arg Xaa
 5 10 15

Ser Ser Ser Ser Ser Ala Gln Cys Ser Leu
 20 25

(2) INFORMATION FOR SEQ ID NO: 334:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -85..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq LYSILHFPPFWVHG/RX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 334:

Met Gly Leu Lys Asp Lys Ser Gln Ala Pro Ala Ser Gly Leu Gly Val
-85 -80 -75 -70
Leu Arg Gly Gln Arg Ser Gly Ser Phe Ile Ser Met Pro Ala Pro Ala
-65 -60 -55
Ser Gly Gln Xaa Pro Glu Glu Ser Arg Ser Pro Ala Pro Pro Val Ala
-50 -45 -40
Ser Arg Ser Gln Asn Arg Gly Tyr Arg Pro Trp His Gly Pro Leu Trp
-35 -30 -25
Val His Gln Ser Val Arg Phe Gly Leu Tyr Ser Ile Leu His Phe Pro
-20 -15 -10
Phe Trp Val His Gly Arg Xaa
-5 1

(2) INFORMATION FOR SEQ ID NO: 335:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 67 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -43..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq PMQLLQVLSDVLA/EI

(zi) SEQUENCE DESCRIPTION: SEQ ID NO: 335:

Met Ser Asp Gln Ile Lys Phe Ile Met Asp Ser Leu Asn Lys Glu Pro
-40 -35 -30
Phe Arg Lys Asn Tyr Asn Leu Ile Thr Phe Asp Ser Leu Glu Pro Met
-25 -20 -15
Gln Leu Leu Gln Val Leu Ser Asp Val Leu Ala Glu Ile Asp Pro Lys
-10 -5 1 5

Val Arg Val Phe Ser Phe Phe Leu Met Gly Ser Arg Lys Pro Ile Ser
 10 15 20
 Pro Ser Trp

(2) INFORMATION FOR SEQ ID NO: 336:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 110 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -104..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.1
seq SSVASLTATPSLA/SP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 336:

Met Ser Pro Ser Cys Leu His Pro Asp Leu Trp Ser Met Cys Leu Glu
 -100 -95 -90
 Val Pro Ser Phe Thr Ala Thr Asp Ser Val Asn Cys Gly Cys Cys Leu
 -85 -80 -75
 Glu Leu Ala Thr Glu Pro Ala Arg Asn Ile Arg Ser Thr Thr Arg Ala
 -70 -65 -60
 Ser Leu Leu Arg Cys Ser Ser Phe Thr Ser Thr Arg Asn Ser Thr Gly
 -55 -50 -45
 Ile Ser Ala Leu Pro Pro Ala Ala Pro Met Ala Trp Pro Phe Ser Ala
 -40 -35 -30 -25
 Ser Leu Ser Thr Leu Pro Val Pro Leu Thr His Ser Ser Val Ala Ser
 -20 -15 -10
 Leu Thr Ala Thr Pro Ser Leu Ala Ser Pro Thr Arg Met Met
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 337:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -16..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.1
seq SFHLLLDPSSTQS/SI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 337:

Met Asp Leu Ser Phe His Leu Leu Asp Pro Ser Ser Thr Gln Ser
-15 -10 -5
Ser Ile Leu Lys His Leu Pro Cys
1 5

(2) INFORMATION FOR SEQ ID NO: 338:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 53 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -26..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5
seq VISVLILVGFGAC/IY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 338:

Met Pro His Phe Leu Asp Trp Phe Val Xaa Val Tyr Leu Val Ile Ser
-25 -20 -15
Val Leu Ile Leu Val Gly Phe Gly Ala Cys Ile Tyr Tyr Phe Glu Pro
-10 -5 1 5
Gly Leu Gln Glu Ala His Lys Trp Arg Met Xaa Arg Pro Trp Trp Thr
10 15 20
Ala Thr Ser Thr Gly
25

(2) INFORMATION FOR SEQ ID NO: 339:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 39 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -30..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5
seq IVGLLAQLEKINA/EP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 339:

Met Ser Lys Leu Lys Val Ile Pro Glu Lys Ser Leu Thr Asn Asn Ser
-30 -25 -20 -15

Arg Ile Val Gly Leu Leu Ala Gln Leu Glu Lys Ile Asn Ala Glu Pro
-10 -5 1

Ser Glu Ser Asp Thr Ser Arg
5

(2) INFORMATION FOR SEQ ID NO: 340:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 43 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5
seq LIPAMAFSLSCVRP/ES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 340:

Met Met Ser Ala Ser Arg Leu Ala Gly Thr Leu Ile Pro Ala Met Ala
-20 -15 -10

Phe Leu Ser Cys Val Arg Pro Glu Ser Xaa Glu Pro Cys Val Glu Val
-5 1 5

Val Pro Asn Ile Thr Tyr Gln Cys Met Glu Leu
 10 15 20

(2) INFORMATION FOR SEQ ID NO: 341:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 65 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -49..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.9
seq VTVCCXLVAFLLFC/IL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 341:

Met Val Asp Gly Thr Gln Leu Arg Gly Leu Thr Arg Met Tyr Gln Val
 -45 -40 -35

Pro Leu Xaa Leu Asp Arg Asp Glu Thr Leu Val Arg Leu Arg Phe Thr
 -30 -25 -20

Met Val Ala Leu Val Thr Val Cys Cys Xaa Leu Val Ala Phe Leu Phe
 -15 -10 -5

Cys Ile Leu Trp Ser Leu Leu Phe His Phe Lys Glu Thr Thr Ala Thr
 1 5 10 15

Gly

(2) INFORMATION FOR SEQ ID NO: 342:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -26..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.9
 seq LISMLQMLAVIIT/NT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 342:

Met Lys Gln Asn Phe Leu Val Leu Asn Ser Val Trp Tyr Leu Ile Ser
 -25 -20 -15
 Met Leu Gln Met Leu Ala Val Ile Ile Thr Asn Thr Thr Ile Thr Thr
 -10 -5 1 5
 Ile Gly

(2) INFORMATION FOR SEQ ID NO: 343:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 124 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -59..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.9
 seq LVEMCLEVLGSSA/GD

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 343:

Met Glu Cys Gln Asn Ser Ser Leu Lys Lys Cys Leu Leu Val Glu Lys
 -55 -50 -45
 Ser Leu Val Lys Ala Ser Tyr Leu Ile Ala Phe Gln Thr Ala Ala Ser
 -40 -35 -30
 Lys Lys Pro Phe Ser Ile Ala Glu Glu Leu Ile Lys Pro Tyr Leu Val
 -25 -20 -15
 Glu Met Cys Leu Glu Val Leu Gly Ser Ser Ala Gly Asp Lys Met Lys
 -10 -5 1 5
 Thr Ile Pro Leu Ser Asn Val Thr Ile Gln His Arg Ile Asp Glu Leu
 10 15 20
 Ser Ala Asp Ile Glu Asp Gln Leu Ile Gln Lys Val Arg Glu Ser Lys
 25 30 35
 Trp Phe Ala Leu Gln Ile Asp Glu Ser Ser Glu Ile Ser Asn Ile Thr
 40 45 50

Leu Leu Leu Cys Tyr Ile Arg Phe Ile Asp Tyr Asp
55 60 65

(2) INFORMATION FOR SEQ ID NO: 344:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq VMWLVALLEMCVC/KK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 344:

Met His Ser Ser Ile Lys Thr Lys Gly Ser Val Met Trp Leu Val Ala
-20 -15 -10

Leu Leu Glu Met Cys Val Cys Lys Lys Ser Arg
-5 1

(2) INFORMATION FOR SEQ ID NO: 345:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 44 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -18..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq LEAISSLSSFVLG/RM

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 345:

Met Thr Val Leu Pro Leu Glu Ala Ile Ser Ser Leu Ser Ser Phe Val
-15 -10 -5

Leu Gly Arg Met Asn Ser Arg Gly Ala Gly Lys Thr Gln Asn Leu Asp
 1 5 10
 Ala Ser Ser Leu Leu Leu Leu Cys Cys Leu Ile Leu
 15 20 25

(2) INFORMATION FOR SEQ ID NO: 346:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 125 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -30..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq ILFCVGAVGACTL/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 346:

Met Gly Thr Ala Ser Arg Ser Asn Ile Ala Arg His Leu Gln Thr Asn
 -30 -25 -20 -15
 Leu Ile Leu Phe Cys Val Gly Ala Val Gly Ala Cys Thr Leu Ser Val
 -10 -5 1
 Thr Gln Pro Trp Tyr Leu Glu Val Asp Tyr Thr His Glu Ala Val Thr
 5 10 15
 Ile Lys Cys Thr Phe Ser Ala Thr Gly Cys Pro Ser Glu Gln Pro Thr
 20 25 30
 Cys Leu Trp Phe Arg Tyr Gly Ala His Gln Pro Glu Asn Leu Cys Leu
 35 40 45 50
 Asp Gly Cys Lys Ser Glu Ala Xaa Lys Phe Thr Val Arg Glu Ala Leu
 55 60 65
 Lys Glu Asn Gln Val Ser Leu Thr Val Asn Arg Val Thr Ser Asn Asp
 70 75 80
 Ser Ala Ile Tyr Ile Cys Gly Ile Ala Phe Pro Ser Val
 85 90 95

(2) INFORMATION FOR SEQ ID NO: 347:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -25..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq ALFYSVVVSTVSG/NE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 347:

```
Met Asn Ser Ser Lys Glu Glu Met Arg Glu Leu Ala Ala Leu Phe Tyr
-25                -20                -15                -10

Ser Val Val Val Ser Thr Val Ser Gly Asn Glu Leu Lys Ser Met Ile
          -5                      1                      5

Glu Gln Leu Ile Lys Thr Thr Lys Asp Asn His Ser Leu Arg
    10                15                20
```

(2) INFORMATION FOR SEQ ID NO: 348:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 81 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -52..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.7
seq LLAKALHLLKSSC/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 348:

```
Met Ser Gln Asp Gly Gly Xaa Gly Glu Leu Lys His Met Val Met Ser
    -50                -45                -40

Phe Arg Val Ser Glu Leu Gln Val Leu Leu Gly Phe Ala Gly Arg Asn
    -35                -30                -25

Lys Ser Gly Arg Lys His Glu Leu Leu Ala Lys Ala Leu His Leu Leu
```

[illegible]

(2) INFORMATION FOR SEO ID NO: 349:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -29..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.7
seq ICYLSIFCLGVLF/II

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 349:

```

Met  Pro  Cys  Ile  Ser  Leu  Leu  Gly  Leu  Leu  Tyr  Asn  Phe  Val  Gln  Val
          -25                      -20                      -15

Leu  Cys  Tyr  Leu  Ser  Ile  Phe  Cys  Leu  Gly  Val  Leu  Phe  Ile  Ile  Glu
          -10                      -5                      1

Arg  Gly  Ser  Leu  Lys  Val  Ser  Lys  Leu  Ile  Cys  Arg  Pro  Pro  Gly
      5                      10                      15

```

(2) INFORMATION FOR SEQ ID NO: 350:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: -15...-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.7
 seq IAVLFCFFLLIIF/QT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 350:

```

Met Lys Ile Ala Val Leu Phe Cys Phe Phe Leu Leu Ile Ile Phe Gln
-15                      -10                      -5                      1

Thr Asp Phe Gly Lys Asn Glu Glu Ile Pro Arg Lys Gln Arg Arg Lys
      5                      10                      15

Ile Tyr His Arg Arg Leu Arg Lys Ser Ser Thr Ser His Lys Gln
      20                      25                      30

```

(2) INFORMATION FOR SEQ ID NO: 351:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 48 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -43...-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 4.7
 seq STWSSASLRGSWQ/QG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 351:

```

Met Ala Lys Gln Lys Pro His Val Leu Gly Ser Arg Val Met Pro Ala
      -40                      -35                      -30

Ser Cys Val Ser Glu Arg Arg Arg Lys Pro Ser Phe Gln Val Ser Thr
      -25                      -20                      -15

Trp Ser Ser Ala Ser Leu Arg Gly Ser Trp Gln Gln Gly Met Pro Gly
      -10                      -5                      1                      5

```

(2) INFORMATION FOR SEQ ID NO: 352:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig peptide

(B) LOCATION: -15..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.6
seq FLYLKSVFDVSLG/AR

(xi) SEQUENCE DESCRIPTION: SEO ID NO: 352:

Met Gly Phe Leu Tyr Leu Lys Ser Val Phe Asp Val Ser Leu Gly Ala
-15 -10 -5 1

Arg

(2) INFORMATION FOR SEQ ID NO: 353:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig peptide

(B) LOCATION: -61..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.6
seq LLLHHGGGHSALS/WA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 353:

Met Arg Met Gly Pro Gly Arg Lys Arg Asp Phe Ser Pro Val Pro Trp
-60 -55 -50

Ser Gln Tyr Phe Glu Ser Met Glu Asp Val Glu Val Glu Asn Glu Thr
-45 -40 -35 -30

Gly Lys Asp Thr Phe Arg Val Tyr Lys Ser Gly Ser Glu Gly Pro Val
-25 -20 -15

Leu Leu Leu Leu His Gly Gly Gly His Ser Ala Leu Ser Trp Ala Val
-10 -5 :

Phe Thr Ala Ala Xaa
5

(2) INFORMATION FOR SEQ ID NO: 354:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -13..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq MIFLLYLLPSSEE/RR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 354:

Met Ile Phe Leu Leu Tyr Leu Leu Pro Ser Ser Glu Glu Arg Arg Lys
-10 -5 1

Leu Leu Phe Ser Pro His Arg
5 10

(2) INFORMATION FOR SEQ ID NO: 355:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 70 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -61..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq LLLLHGGGHSALS/WA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 355:

Met Arg Met Gly Pro Gly Arg Lys Arg Asp Phe Ser Pro Val Pro Trp
-60 -55 -50

Ser Gln Tyr Phe Glu Ser Met Glu Asp Val Glu Val Glu Asn Glu Thr
-45 -40 -35 -30

Gly Lys Asp Thr Phe Arg Val Tyr Lys Ser Gly Ser Glu Gly Pro Val
 -25 -20 -15

Leu Leu Leu Leu His Gly Gly Gly His Ser Ala Leu Ser Trp Ala Val
 -10 -5 1

Phe Thr Ala Ala Thr Trp
 5

(2) INFORMATION FOR SEQ ID NO: 356:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq LLNLISILASIPS/QF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 356:

Met Leu Ser Leu Leu Asn Leu Ile Ser Ile Leu Ala Ser Ile Pro Ser
 -15 -10 -5

Gln Phe Lys Pro Gln Phe Ser Lys Leu Pro Leu Ser Gly Arg
 1 5 10

(2) INFORMATION FOR SEQ ID NO: 357:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -25..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq LMLLWPVHPLLVG/HR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 357:

Met Gly Thr Thr Ser Asn Met Val Thr Thr Ile His Leu Met Leu Leu
-25 -20 -15 -10

Trp Pro Val His Pro Leu Leu Val Gly His Arg Gly
-5 1

(2) INFORMATION FOR SEQ ID NO: 358:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 147 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -101..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq ISHILAFFAASDG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 358:

Met Gly Asp Pro Glu Arg Pro Glu Ala Ala Gly Leu Asp Gln Asp Glu
-100 -95 -90

Arg Ser Ser Ser Asp Thr Asn Glu Ser Glu Ile Lys Ser Asn Glu Glu
-85 -80 -75 -70

Pro Leu Leu Arg Lys Ser Ser Arg Arg Phe Val Ile Phe Pro Ile Gln
-65 -60 -55

Tyr Pro Asp Ile Trp Lys Met Tyr Lys Gln Ala Gln Ala Ser Phe Trp
-50 -45 -40

Thr Ala Glu Glu Val Asp Leu Ser Lys Asp Leu Pro His Trp Asn Lys
-35 -30 -25

Leu Lys Ala Asp Glu Lys Tyr Phe Ile Ser His Ile Leu Ala Phe Phe
-20 -15 -10

Ala Ala Ser Asp Gly Ile Val Asn Glu Asn Leu Val Glu Arg Phe Ser
-5 1 5 10

Gln Glu Val Gln Val Pro Glu Ala Arg Cys Phe Tyr Gly Phe Gln Ile
15 20 25

Leu Ile Glu Asn Val His Ser Glu Met Tyr Ser Leu Leu Ile Asp Thr
30 35 40

Tyr Ile Arg
45

(2) INFORMATION FOR SEQ ID NO: 359:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 65 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4
seq GLFSLLPHPPCVG/RV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 359:

Met Asp Ala Gly Leu Phe Ser Leu Leu Pro His Pro Pro Cys Val Gly
-15 -10 -5

Arg Val Leu Pro Gln Ser Arg Tyr His Leu His Pro Arg Ser Pro Leu
1 5 10 15

Val Glu Asp Thr Cys Phe Phe Gln Arg Leu Lys Lys Ile Leu Asn Lys
20 25 30

Ile Gly Asn Leu Phe His Ser Thr Lys Ser Leu Cys Val Ser Leu Ala
35 40 45

Pro

(2) INFORMATION FOR SEQ ID NO: 360:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -14..-1

- (C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.4
seq LITLTYLIQGESA/RT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 360:

Met Leu Ile Thr Leu Thr Tyr Leu Ile Gln Gly Glu Ser Ala Arg Thr
 -10 -5 1
Thr Phe Glu
 5

(2) INFORMATION FOR SEQ ID NO: 361:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -26..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.4
seq RVQCLCAIPFAFS/LT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 361:

Met Tyr Thr Gly Phe Arg Ile Glu Ala Thr Leu Leu Thr Arg Val Gln
 -25 -20 -15
Cys Leu Cys Ala Ile Pro Phe Ala Phe Ser Leu Thr Gly Ile Arg
-10 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 362:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 56 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide

(B) LOCATION: -47..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.4
seq ISHILAFFAASDG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 362:

```
Met Tyr Lys Gln Ala Gln Ala Ser Phe Trp Thr Ala Glu Glu Val Asp  
      -45                      -40                      -35
```

```
Leu Ser Lys Asp Leu Pro His Trp Asn Lys Leu Lys Ala Asp Glu Lys  
     -30                      -25                      -20
```

```
Tyr Phe Ile Ser His Ile Leu Ala Phe Phe Ala Ala Ser Asp Gly Ile  
-15                        -10                        -5                        1
```

```
Val Asn Glu Asn Leu Val Glu Arg  
          5
```

(2) INFORMATION FOR SEQ ID NO: 363:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 48 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

```
(ix) FEATURE:
      (A) NAME/KEY: sig_peptide
      (B) LOCATION: -28..-1
      (C) IDENTIFICATION METHOD: Von Heijne matrix
      (D) OTHER INFORMATION:  score 4.3
                               seq FLGLAAMASPSRN/SQ
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 363:

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Leu | His | Leu | Cys | Ser | Val | Lys | Asn | Leu | Tyr | Gln | Asn | Arg | Phe |
| | | | -25 | | | | | -20 | | | | | -15 | | |
| Leu | Gly | Leu | Ala | Ala | Met | Ala | Ser | Pro | Ser | Arg | Asn | Ser | Gln | Ser | Arg |
| | | -10 | | | | | -5 | | | | | 1 | | | |
| Arg | Arg | Cys | Lys | Glu | Pro | Leu | Arg | Tyr | Ser | Tyr | Asn | Pro | Asp | Gln | Gly |
| 5 | | | | | 10 | | | | | 15 | | | | | 20 |

(2) INFORMATION FOR SEQ ID NO: 364:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 55 amino acids
 (B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -18..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.3
seq WTCLKSFPSPTSS/HA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 364:

```

Met Pro Cys Pro Thr Trp Thr Cys Leu Lys Ser Phe Pro Ser Pro Thr
      -15                      -10                      -5

Ser Ser His Ala Ser Ser Leu His Leu Pro Pro Ser Cys Thr Arg Leu
      1                      5                      10

Thr Leu Thr Gln Thr Leu Arg Thr Gly Met His Leu Ser Arg Ala Leu
      15                      20                      25                      30

Gln Gly Thr Leu Thr Arg Gln
      35

```

(2) INFORMATION FOR SEQ ID NO: 365:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 73 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -33..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.3
seq LLGWGLNLTGQG/AP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 365:

```

Met Glu Asp Leu Phe Ser Pro Ser Ile Xaa Pro Pro Ala Pro Asn Ile
      -30                      -25                      -20

Ser Val Pro Ile Leu Leu Gly Trp Gly Leu Asn Leu Thr Leu Gly Gln
      -15                      -10                      -5

```

Gly Ala Pro Ala Ser Gly Pro Pro Ser Arg Arg Val Arg Leu Val Phe
 1 5 10 15
 Leu Gly Val Ile Leu Val Val Ala Val Ala Xaa Asn Thr Thr Val Leu
 20 25 30
 Cys Arg Leu Cys Gly Gly Gly Gly Pro
 35 40

(2) INFORMATION FOR SEQ ID NO: 366:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 55 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -52..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq VMLETCGLLVSLG/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 366:

Met Ala Glu Thr Lys Asp Ala Ala Gln Met Leu Val Thr Phe Lys Asp
 -50 -45 -40
 Val Ala Val Thr Phe Thr Arg Glu Glu Trp Arg Gln Leu Asp Leu Ala
 -35 -30 -25
 Gln Arg Thr Leu Tyr Arg Glu Val Met Leu Glu Thr Cys Gly Leu Leu
 -20 -15 -10 -5
 Val Ser Leu Gly His Pro Arg
 1

(2) INFORMATION FOR SEQ ID NO: 367:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -13..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq MLILSQNIAQLEA/QV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 367:

```

Met Leu Ile Leu Ser Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu
   -10                      -5                      1
Lys Val Thr Lys Glu Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Asn
   5                      10                      15
Ser Lys Pro Ala Gly Phe Ser Gly Lys Trp Met Ser Gln
  20                      25                      30

```

(2) INFORMATION FOR SEQ ID NO: 368:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 97 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -21..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq GLWAHSWTCSCSA/AX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 368:

```

Met Leu Leu Gly Ala Ser Ala Gln Gly Leu Trp Ala His Ser Trp Thr
  -20                      -15                      -10
Cys Ser Cys Ser Ala Ala Xaa Arg Ser Val His Pro Gly Gly Asp Trp
  -5                      1                      5                      10
Met Gln Gln Phe Gln Ala Gly Phe Leu Pro Pro Gln Val Pro Ala His
   15                      20                      25
Leu Ser Leu Thr Trp Asp Val Ser Leu Leu Pro Pro Cys Leu Val Pro
   30                      35                      40
Lys Ala Leu Glu Phe Val Val His Phe Leu Lys Asn Asp Ile Phe Tyr
   45                      50                      55
Leu Thr Gln Tyr Ile Lys Asn Val Ile Ser Glu Cys Thr Phe Ser Phe
   60                      65                      70                      75

```

Phe

(2) INFORMATION FOR SEO ID NO: 369:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 68 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -15..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.1
seq APLELSCWGGGGWG/LP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 369:

```

Met Ala Ala Pro Leu Glu Leu Ser Cys Trp Gly Gly Gly Trp Gly Leu
-15          -10          -5          1

Pro Ser Val His Ser Glu Ser Leu Val Val Met Ala Tyr Ala Lys Phe
          5          10          15

Ser Gly Ala Pro Leu Lys Val Asn Val Ile Asp Asn Thr Trp Arg Gly
          20          25          30

Ser Arg Gly Asp Val Pro Ile Leu Thr Thr Glu Asp Asp Met Val Ser
          35          40          45

Gln Pro Ala Arg
          50

```

(2) INFORMATION FOR SEQ ID NO: 370:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 69 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- ```
(A) NAME/KEY: sig_peptide
(E) LOCATION: -20..-1
```

(C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 4.1  
 seq LGFLNCYIAVARS/GG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 370:

```

Met Ser Xaa Val Gly Ile Asp Leu Gly Phe Leu Asn Cys Tyr Ile Ala
-20 -15 -10 -5

Val Ala Arg Ser Gly Gly Ile Glu Thr Ile Ala Asn Glu Tyr Ser Asp
 1 5 10

Arg Cys Thr Pro Ala Cys Ile Ser Leu Gly Ser Arg Thr Arg Ala Ile
 15 20 25

Gly Asn Ala Ala Lys Ser Gln Ile Val Thr Asn Val Arg Asn Thr Ile
 30 35 40

His Gly Phe Lys Lys
 45

```

(2) INFORMATION FOR SEQ ID NO: 371:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 43 amino acids  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -19..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 4.1  
 seq FVVFSTMTASSP/GE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 371:

```

Met Glu Tyr Ser Lys Xaa Phe Val Val Phe Ser Thr Met Phe Thr Ala
 -15 -10 -5

Ser Ser Pro Gly Glu Asp Phe Pro Pro Phe Phe Ser Gln Met Xaa Arg
 1 5 10

Leu Ser Arg Asn Tyr Phe Pro Cys Pro Pro Xaa
 15 20

```

(2) INFORMATION FOR SEQ ID NO: 372:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 72 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -40..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1  
seq LPFRLPWASTATA/RC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 372:

```
Met Pro Met Ala Ser Ser Pro Pro Pro Ser Pro His Pro Gln Glu Pro
-40 -35 -30 -25

Ala Pro Leu Leu Pro Ser Leu Pro Arg Leu Ser Leu Pro Phe Arg Leu
 -20 -15 -10

Pro Trp Ala Ser Thr Ala Thr Ala Arg Cys Pro Pro Ser Pro Leu Gly
 -5 1 5

Ser Leu Xaa Leu Met Leu Cys Ile Pro Thr Gly Phe Thr Pro Thr Gln
 10 15 20

Pro Arg Ala Pro Arg Pro Pro Gly
 25 30
```

(2) INFORMATION FOR SEQ ID NO: 373:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 55 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -38..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4  
seq WALGLKFLSSSSQ/NF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 373:

```
Met Gln His Val Xaa Gly His Xaa Pro Asp Pro Ile Ala Ile Met Tyr
```

```

 -35 -30 -25
Val Cys Pro Pro Cys Gly His Thr Thr Trp Ala Leu Gly Leu Lys Phe
 -20 -15 -10
Leu Ser Ser Ser Ser Gln Asn Phe Cys Ala Pro Val Leu Phe Leu Ile
 -5 1 5 10
Leu His Thr Gly Gly Gln Arg
 15

```

## (2) INFORMATION FOR SEQ ID NO: 374:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 53 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -30..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4  
seq AGFLKCLLLSSLQ/SY

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 374:

```

Met Gly Trp Glu Met Thr Cys Ile Lys Ser Phe Phe Trp Ala Arg Ser
-30 -25 -20 -15
His Ala Gly Phe Leu Lys Cys Leu Leu Leu Ser Ser Leu Gln Ser Tyr
 -10 -5 1
Lys Glu Ala Ala Val Ile Phe Pro Leu Thr Asp Leu Leu Lys Leu Lys
 5 10 15
Asp Tyr Gly Glu Trp
 20

```

## (2) INFORMATION FOR SEQ ID NO: 375:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -36..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4  
seq VQLSFAATTPVLA/DK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 375:

Met Val Phe Gly Gly Val Cys Pro Ser Val Thr Ser Ile Ile Ala Glu  
-35 -30 -25  
Ser Leu Gln Gly Trp Asn Leu Val Gln Leu Ser Phe Ala Ala Thr Thr  
-20 -15 -10 -5  
Pro Val Leu Ala Asp Lys  
1

(2) INFORMATION FOR SEQ ID NO: 376:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4  
seq ITWSLLFLYQCSL/HF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 376:

Met His Phe Ile Thr Trp Ser Leu Leu Phe Leu Tyr Gln Cys Ser Leu  
-15 -10 -5  
His Phe Ile Ile Ile Lys Ala Gly  
1 5

(2) INFORMATION FOR SEQ ID NO: 377:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 41 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR



(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -36..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.9  
seq CWPSVASPSSWS/SP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 377:

```
Met Ser Gly Ala Ser Pro Ile Glu Arg Thr Pro Met Glu Glu Ala Pro
 -35 -30 -25

Ser Ser Cys Pro Thr Ser Ser Cys Trp Pro Ser Val Ala Ser Pro Ser
-20 -15 -10 -5

Ser Ser Trp Ser Ser Pro Trp Ala Ser
 1 5
```

(2) INFORMATION FOR SEQ ID NO: 378:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 50 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -37..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.9  
seq PGPSLRLFSGSQA/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 378:

```
Met Glu Trp Ala Gly Lys Gln Arg Asp Phe Gln Val Arg Ala Ala Pro
 -35 -30 -25

Gly Trp Asp His Leu Ala Ser Phe Pro Gly Pro Ser Leu Arg Leu Phe
-20 -15 -10

Ser Gly Ser Gln Ala Ser Val Cys Ser Leu Cys Ser Gly Phe Gly Ala
 -5 1 5 10

Gln Glu
```

## (2) INFORMATION FOR SEQ ID NO: 379:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 67 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -60..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq AKVVSLSLQTSSA/HH

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 379:

Met Ile Ala Phe Phe Asp Glu Asp Asn Pro Arg Lys Arg Arg Ser Tyr  
-60 -55 -50 -45  
Ser Phe Thr Gln Ser Ala Gly Ile Leu Cys Gln Glu Thr Thr Tyr Ser  
-40 -35 -30  
Thr Pro His Thr Lys Leu Glu Lys Ala Lys Ser Pro Thr Ala Asp Ala  
-25 -20 -15  
Lys Val Val Ser Leu Ser Leu Gln Thr Ser Ser Ala His His Arg Gly  
-10 -5 1  
Gly Xaa Gly  
5

## (2) INFORMATION FOR SEQ ID NO: 380:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -48..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq ALFCTLPCPVERG/QQ

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 380:

```

Met Gly Lys Ser Ile Xaa Ser Leu Cys Ser Val Xaa Leu Lys Ala Arg
 -45 -40 -35

Leu Lys Gly Xaa Leu Glu Ala Val His Leu Cys Leu Arg Ala Gln Lys
 -30 -25 -20

Arg Arg Thr Ala Leu Phe Cys Thr Leu Pro Cys Pro Val Glu Arg Gly
 -15 -10 -5

Gln Gln Val Pro Gly Xaa Xaa Xaa Arg Leu Arg Leu Ala Ser Pro Ser
 1 5 10 15

Val Ala Lys Val Phe Gln Cys Phe Leu Ser Lys Leu Cys Val Trp Asn
 20 25 30

Ile Lys Asp Gly Leu Ser Arg
 35

```

## (2) INFORMATION FOR SEQ ID NO: 381:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 53 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -15..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq LHMTLFRVPFTFS/XF

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 381:

```

Met Cys Leu His Met Thr Leu Phe Arg Val Pro Phe Thr Phe Ser Xaa
-15 -10 -5 1

Phe Trp Lys Gly Ala Gly Arg Gln Glu Glu Cys Ser Phe Lys Pro Ser
 5 10 15

Leu Tyr Tyr Tyr Lys Leu Ile Met Val Leu Lys Ile Ala Leu Leu Leu
 20 25 30

Ser Pro Pro Pro Lys
 35

```

## (2) INFORMATION FOR SEQ ID NO: 382:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -14..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq LNILKTLTSAALP/SP

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 382:

Met Leu Asn Ile Leu Lys Thr Leu Thr Ser Ala Ala Leu Pro Ser Pro  
                  -10                  -5                  1

Ser Pro Arg Pro Asn Lys Arg  
                  5

## (2) INFORMATION FOR SEQ ID NO: 383:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 51 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -40..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq SPLLCLYHPPVYT/ST

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 383:

Met Arg Ala Arg Val Trp Pro Arg Ser His Gly Ile Pro Val Pro Ser  
-40                  -35                  -30                  -25

Phe Leu Ser Lys Ser Ser Leu Ser His Thr Pro Ser Pro Leu Leu Cys  
                  -20                  -15                  -10

Leu Tyr His Pro Pro Val Tyr Thr Ser Thr Thr Thr Pro Ser Ile Pro

-5

1

5

Pro Arg Leu  
10

## (2) INFORMATION FOR SEQ ID NO: 384:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 51 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -36..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9  
seq SLCLSLIPGPKP/LV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 384:

```

Met Trp Asn Ala Val Ala Ile Ile Cys Asn Gly Ser Trp Cys Gln Thr
-35 -30 -25

Xaa Ser Thr Ser Gly Leu Glu Ser Leu Cys Leu Ser Leu Leu Ile Pro
-20 -15 -10 -5

Gly Pro Lys Pro Leu Val Ser Val Gly Ile Asn Gln Leu Leu Leu Thr
 1 5 10

Ser Ser Arg
15

```

## (2) INFORMATION FOR SEQ ID NO: 385:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -14..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.9  
seq LRLGLFKISWARC/LS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 385:

Met Leu Arg Leu Gly Leu Phe Lys Ile Ser Trp Ala Arg Cys Leu Ser  
                    -10                    -5                    1  
  
Tyr Ser Lys Thr Gln Xaa Glu  
                    5

(2) INFORMATION FOR SEQ ID NO: 386:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 61 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -36..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.9  
seq VVEILPYLPCLTA/RD

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 386:

Met Pro Phe Ala Glu Asp Lys Thr Tyr Lys Tyr Ile Cys Arg Asn Phe  
-35                    -30                    -25  
  
Ser Asn Phe Cys Asn Val Asp Val Val Glu Ile Leu Pro Tyr Leu Pro  
-20                    -15                    -10                    -5  
  
Cys Leu Thr Ala Arg Asp Gln Asp Arg Leu Arg Ala Thr Cys Thr Leu  
                    1                    5                    10  
  
Ser Gly Asn Arg Asp Thr Leu Trp His Leu Phe Asn Thr  
                    15                    20                    25

(2) INFORMATION FOR SEQ ID NO: 387:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 40 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -36..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.8  
seq GTDSLSFLPPCPC/CP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 387:

```
Met Pro Gly Ser Ser Gly Leu Arg Phe Ile Cys Lys Ser Arg Asn His
 -35 -30 -25

Pro Gln Phe Gly Ser Phe Ser Gly Thr Asp Ser Leu Ser Phe Leu Pro
-20 -15 -10 -5

Pro Cys Pro Cys Cys Pro Ala Ala
 1
```

## (2) INFORMATION FOR SEQ ID NO: 388:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 66 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -57..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.8  
seq QLXLVMEFCGAGS/VT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 388:

```
Met Asp Val Thr Gly Asp Glu Glu Glu Glu Ile Lys Gln Glu Ile Asn
 -55 -50 -45

Met Leu Lys Lys Tyr Ser His His Arg Asn Ile Ala Thr Tyr Tyr Gly
 -40 -35 -30

Ala Phe Ile Lys Lys Asn Pro Pro Gly Met Asp Asp Gln Leu Xaa Leu
-25 -20 -15 -10

Val Met Glu Phe Cys Gly Ala Gly Ser Val Thr Asp Leu Ile Lys Asn
 -5 1 5

Thr Gly
```

(2) INFORMATION FOR SEO ID NO: 389:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide  
(B) LOCATION: -24..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.8  
seq KLFLVFLLNICKG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 389:

Met Ile Phe Gly Leu Tyr Phe Val Leu Ala Val Lys Leu Phe Leu Val  
-20 -15 -10

Phe Leu Leu Asn Ile Cys Lys Gly Ile Val  
-5 1

(2) INFORMATION FOR SEQ ID NO: 390:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide  
(B) LOCATION: -34..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 3.6  
seq IKCSSWISSLASG/IP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 390:

Met Arg Lys Lys Arg Val Glu Glu Leu Ile Val Phe Pro Gly Glu Val  
-30 -25 -20

Thr Ser Phe Ser Ser Ile Lys Cys Ser Ser Trp Ile Ser Ser Leu Ala  
-15 -10 -5



Ser Gly Ile Pro His Ser Leu Gly Phe Ser Leu Pro Pro Gly  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 391:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -28..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq ACLFSXFLAVSRH/PN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 391:

Met Pro Ser Ser Ser Leu Ala Glu Leu Cys Leu Met Gln Gln Asp Ala  
-25 -20 -15  
Cys Leu Phe Ser Xaa Phe Leu Ala Val Ser Arg His Pro Asn Tyr Xaa  
-10 -5 1  
Cys Ser Ile Ser Thr Lys Gly Glu Val Arg Glu Lys Leu Val Pro Trp  
5 10 15 20  
Ile Thr His Gln Met Ala Arg Met Leu  
25

(2) INFORMATION FOR SEQ ID NO: 392:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -40..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6

seq LQMRMQLPCLVLG/EE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 392:

Met Asp Leu Trp Ser Cys Leu Phe Pro Val Met Leu Met Glu Pro Ser  
 -40 -35 -30 -25

Lys Gly Leu Glu Asp Ser Glu Trp Lys Met Ala Leu Gln Met Arg Met  
 -20 -15 -10

Gln Leu Pro Cys Leu Val Leu Gly Glu Glu Gln Thr Leu Gly  
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 393:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 37 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -27..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq AVPLPTTSTLTSA/ST

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 393:

Met Ser Gly Lys Gly Lys Cys Arg Pro Ile Ala Leu Arg Arg Ala Val  
 -25 -20 -15

Pro Leu Pro Thr Thr Ser Thr Leu Thr Ser Ala Ser Thr Gly Phe Leu  
 -10 -5 1 5

Trp Ile Leu Lys Glu  
 10

(2) INFORMATION FOR SEQ ID NO: 394:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -18..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq IQKSSGLFCPSQA/QS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 394:

Met Thr Pro Lys Ala Ile Gln Lys Ser Ser Gly Leu Phe Cys Pro Ser  
-15 -10 -5

Gln Ala Gln Ser Ala Arg Pro Ala Glu Lys  
1 5

(2) INFORMATION FOR SEQ ID NO: 395:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 103 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -72..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq CTSLLQLYDASNS/EW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 395:

Met Pro Asp Gln Phe Asp Gln Ala Val Val Leu Asn Gln Leu Arg Tyr  
-70 -65 -60

Ser Gly Met Leu Glu Thr Val Arg Ile Arg Lys Ala Gly Tyr Ala Val  
-55 -50 -45

Arg Arg Pro Phe Gln Asp Phe Tyr Lys Arg Tyr Lys Val Leu Met Arg  
-40 -35 -30 -25

Asn Leu Ala Leu Pro Glu Asp Val Arg Gly Lys Cys Thr Ser Leu Leu  
-20 -15 -10

Gln Leu Tyr Asp Ala Ser Asn Ser Glu Trp Gln Leu Gly Lys Thr Lys  
-5 1 5

Val Phe Leu Arg Glu Ser Leu Glu Gln Lys Leu Glu Lys Arg Arg Glu  
10 15 20

Glu Glu Val Ser His Ala Gly  
25 30

(2) INFORMATION FOR SEQ ID NO: 396:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -15..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq LVSFFLELNVLQQ/WP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 396:

Met Cys Leu Val Ser Phe Phe Leu Glu Leu Asn Val Leu Gln Gln Trp  
-15 -10 -5 1

Pro Ala Gly

(2) INFORMATION FOR SEQ ID NO: 397:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 44 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -13..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq MRSACLTPCGHA/GS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 397:

Met Arg Ser Leu Ala Cys Leu Thr Pro Cys Gly His Ala Gly Ser Arg  
-10 -5 1

Leu Gln Ser Ser Leu Ser Lys Tyr Leu Val Leu Pro Asn Leu Glu Cys  
           5                          10                          15  
 Leu Phe Phe Leu Phe Leu Ile Ser Asn Arg Arg Trp  
           20                          25                          30

## (2) INFORMATION FOR SEQ ID NO: 398:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 82 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -13..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5  
seq MHLLSNWANPASS/RR

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 398:

Met His Leu Leu Ser Asn Trp Ala Asn Pro Ala Ser Ser Arg Arg Pro  
           -10                          -5                          1  
 Ser Met Ala Ala Ser Gly Thr Ser Trp Ile Ser Ser Thr Leu Ala His  
           5                          10                          15  
 Ser Leu Ser Leu Arg Asp Val Ser Glu Arg Leu Cys Ser Cys Trp Arg  
           20                          25                          30                          35  
 Thr Ile Ser Met Gly Pro Cys Ala Arg Gly Ser Pro Met Asn Ser Ser  
                           40                          45                          50  
 Gly Val His Arg Lys Ser Ser Arg Leu Phe Tyr Ile Arg Thr Pro Met  
           55                          60                          65  
 Arg Arg

## (2) INFORMATION FOR SEQ ID NO: 399:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 118 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5  
seq FAMLHSVWRLIPA/FR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 399:

Met Trp Ser Gly Lys Trp Ala Leu Val Ser Pro Phe Ala Met Leu His  
                  -20                  -15                  -10

Ser Val Trp Arg Leu Ile Pro Ala Phe Arg Gly Tyr Ala Gln Gln Asp  
                  -5                          1                          5

Ala Gln Glu Phe Leu Cys Glu Leu Leu Asp Lys Ile Gln Arg Glu Leu  
          10                          15                          20

Glu Thr Thr Gly Thr Ser Leu Pro Ala Leu Ile Pro Thr Ser Gln Arg  
          25                          30                          35                          40

Lys Leu Ile Lys Gln Val Leu Asn Val Val Asn Asn Ile Phe His Gly  
                  45                          50                          55

Gln Leu Leu Ser Gln Val Thr Cys Leu Ala Cys Asp Asn Lys Ser Asn  
                  60                          65                          70

Thr Ile Glu Pro Phe Trp Asp Leu Ser Leu Glu Xaa Pro Glu Arg Tyr  
          75                          80                          85

Gln Cys Ser Xaa Lys Gly  
          90

(2) INFORMATION FOR SEQ ID NO: 400:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 41 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -20..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5  
seq KFCLICLLTFIFH/HC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 400:

Met Lys Val His Met His Thr Lys Phe Cys Leu Ile Cys Leu Leu Thr  
 -20 -15 -10 -5

Phe Ile Phe His His Cys Asn His Cys His Glu Glu His Asp His Gly  
 1 5 10

Pro Glu Ala Leu His Arg Gln Gln Gly  
 15 20

(2) INFORMATION FOR SEQ ID NO: 401:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 49 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5  
seq ALSLFYTADTSHG/SE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 401:

Met Gly Arg Arg His Trp Val Leu Thr His Ser Ala Leu Ser Leu Phe  
 -20 -15 -10

Tyr Thr Ala Asp Thr Ser His Gly Ser Glu Lys Pro Tyr Leu Ser Leu  
 -5 1 5

Phe Gly Arg Glu Gly Gly Arg Glu Gly Ser Asn Pro Lys Tyr Tyr Ser  
 10 15 20

Phe  
 25

(2) INFORMATION FOR SEQ ID NO: 402:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 93 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 12.5  
seq FVVLALVAGVLG/NE

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 402:

```

Met Ala Val Phe Val Val Leu Leu Ala Leu Val Ala Gly Val Leu Gly
-15 -10 -5

Asn Glu Phe Ser Ile Leu Lys Ser Pro Gly Ser Val Val Phe Arg Asn
 1 5 10 15

Gly Asn Trp Pro Ile Pro Gly Glu Arg Ile Pro Asp Val Ala Ala Leu
 20 25 30

Ser Met Gly Phe Ser Val Lys Glu Asp Leu Ser Trp Pro Gly Leu Ala
 35 40 45

Val Gly Asn Leu Phe His Arg Pro Arg Ala Ser Val Met Val Met Val
 50 55 60

Lys Gly Val Asn Asn Xaa Pro Leu Pro Pro Xaa Trp Xaa
65 70 75

```

## (2) INFORMATION FOR SEQ ID NO: 403:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 65 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.1  
seq LLLQLAVLGAAALA/AA

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 403:

```

Met Ala Pro Leu Leu Leu Gln Leu Ala Val Leu Gly Ala Ala Leu Ala
-15 -10 -5

Ala Ala Ala Leu Val Leu Ile Ser Ile Val Ala Phe Thr Thr Ala Thr
 1 5 10 15

Lys Met Pro Ala Leu His Arg His Glu Glu Lys Phe Phe Leu Asn
20 25 30

```



Ala Lys Gly Gln Lys Glu Thr Leu Pro Ser Ile Trp Asp Ser Pro Thr  
           35                                  40                                  45

Arg

(2) INFORMATION FOR SEQ ID NO: 404:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 84 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -50..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.8  
seq LLRLQLVSTCVA/FS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 404:

Met Pro Val Thr Val Thr Arg Thr Thr Ile Thr Thr Thr Thr Thr Ser  
 -50                                  -45                                  -40                                  -35

Ser Ser Gly Leu Gly Ser Pro Met Ile Val Gly Ser Pro Arg Ala Leu  
                                   -30                                  -25                                  -20

Thr Gln Pro Leu Gly Leu Leu Arg Leu Leu Gln Leu Val Ser Thr Cys  
                                   -15                                  -10                                  -5

Val Ala Phe Ser Leu Val Ala Ser Val Gly Ala Trp Thr Gly Ser Met  
           1                                  5                                  10

Gly Asn Trp Ser Met Phe Thr Trp Cys Phe Cys Phe Ser Val Thr Leu  
   15                                  20                                  25                                  30

Ile Ile Leu Ile

(2) INFORMATION FOR SEQ ID NO: 405:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 72 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -18..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 9.2  
 seq VFLCSLLAPMVLA/SA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 405:

```

Met Glu Leu Val Leu Val Phe Leu Cys Ser Leu Leu Ala Pro Met Val
 -15 -10 -5

Leu Ala Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe His Tyr
 1 5 10

Asp Tyr Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala Val Val Leu
 15 20 25 30

Phe Ser Val Gly Ile Leu Leu Ile Leu Ser Arg Arg Cys Lys Cys Ser
 35 40 45

Phe Asn Gln Lys Pro Arg Asn Arg
 50

```

(2) INFORMATION FOR SEQ ID NO: 406:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 70 amino acids  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -46..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 7.9  
 seq LLGLLSAEQLAEA/SV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 406:

```

Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly Asn Cys Arg Ser Leu Leu
 -45 -40 -35

Phe Val Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val
 -30 -25 -20 -15

Gln Leu Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val
 -10 -5 1

```

Leu Ile Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu  
5 10 15  
Glu Met Lys Ser Leu Ile  
20

## (2) INFORMATION FOR SEQ ID NO: 407:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -47..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.9  
seq LLLPRVLLTMASG/SP

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 407:

Met Ser Gly Gly Arg Ala Pro Ala Val Leu Leu Gly Gly Val Ala Ser  
-45 -40 -35  
Leu Leu Leu Ser Phe Val Trp Met Pro Ala Leu Leu Pro Val Ala Ser  
-30 -25 -20  
Arg Leu Leu Leu Leu Pro Arg Val Leu Leu Thr Met Ala Ser Gly Ser  
-15 -10 -5 1  
Pro Pro Thr Gln Pro Ser Pro Ala Trp  
5 10

## (2) INFORMATION FOR SEQ ID NO: 408:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 92 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -40..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 7.9  
seq SLLLLFGGQFASS/QE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 408:

```

Met Ala Leu Ser Cys Thr Leu Asn Arg Tyr Leu Leu Leu Met Ala Gln
-40 -35 -30 -25

Glu His Leu Glu Phe Arg Leu Pro Glu Ile Xaa Ser Leu Leu Leu Leu
 -20 -15 -10

Phe Gly Gly Gln Phe Ala Ser Ser Gln Glu Thr Tyr Gly Lys Ser Pro
 -5 1 5

Phe Trp Ile Leu Ser Ile Pro Ser Glu Asp Ile Ala Arg Asn Leu Met
10 15 20

Lys Arg Thr Val Cys Ala Lys Ser Ile Phe Glu Leu Trp Gly His Gly
25 30 35 40

Gln Ser Pro Glu Glu Leu Tyr Ser Ser Leu Lys Asn
 45 50

```

(2) INFORMATION FOR SEQ ID NO: 409:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 91 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -53...-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.1  
seq IAVGLGVAALAF/GR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 409:

```

Met Ala Ala Arg Gly Val Ile Ala Pro Val Gly Glu Ser Leu Arg Tyr
 -50 -45 -40

Ala Glu Tyr Leu Gln Pro Ser Ala Lys Arg Pro Asp Ala Asp Val Asp
 -35 -30 -25

Gln Gln Arg Leu Val Arg Ser Leu Ile Ala Val Gly Leu Gly Val Ala
 -20 -15 -10

Ala Leu Ala Phe Ala Gly Arg Tyr Ala Phe Arg Ile Trp Lys Pro Leu
 -5 1 5 10

```

Glu Gln Val Ile Thr Glu Thr Ala Lys Lys Ile Ser Thr Pro Ser Phe  
15 20 25  
Ser Ser Tyr Tyr Lys Gly Gly Phe Glu Arg Arg  
30 35

## (2) INFORMATION FOR SEQ ID NO: 410:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -28..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.6  
seq VLGXLFLGGLCRG/WD

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 410:

Met Arg Met Cys Ala Gly Ser Ile Tyr Lys Ser Ala Thr Gln Ala Val  
-25 -20 -15  
Leu Gly Xaa Leu Phe Leu Gly Gly Leu Cys Arg Gly Trp Asp Ala  
-10 -5 1

## (2) INFORMATION FOR SEQ ID NO: 411:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -78..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.3  
seq TLIMLLSWQLSVS/SV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 411:

```

Met Ala Glu Arg Arg Arg Pro Leu Ser Pro Ile Pro Ser Xaa Arg Arg
 -75 -70 -65

Pro Ser Glu Pro Ser Arg Pro Arg Pro Ala Ala Ala Gly Xaa Arg Ser
 -60 -55 -50

Leu Pro Arg Pro Gly Asp Glu Glu Leu Gln Leu Pro Cys Ala Val His
 -45 -40 -35

Asp Leu Ile Phe Trp Arg Asp Val Lys Lys Thr Gly Phe Val Phe Gly
-30 -25 -20 -15

Thr Thr Leu Ile Met Leu Leu Ser Trp Gln Leu Ser Val Ser Ser Val
 -10 -5 1

```

## (2) INFORMATION FOR SEQ ID NO: 412:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 133 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -109..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6  
seq LQLLLGMTASAVA/AL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 412:

```

Met Ala Ala Pro Val Leu Leu Arg Val Ser Val Pro Arg Trp Glu Arg
 -105 -100 -95

Val Ala Arg Tyr Ala Val Cys Ala Ala Gly Ile Leu Leu Ser Ile Tyr
 -90 -85 -80

Ala Tyr His Val Glu Arg Glu Lys Glu Arg Asp Pro Glu His Arg Ala
 -75 -70 -65

Leu Cys Asp Leu Gly Pro Trp Val Lys Cys Ser Ala Ala Leu Ala Ser
 -60 -55 -50

Arg Trp Gly Arg Gly Phe Gly Leu Leu Gly Ser Ile Phe Gly Lys Asp
-45 -40 -35 -30

Gly Val Leu Asn Gln Pro Asn Ser Val Phe Gly Leu Ile Phe Tyr Ile
 -25 -20 -15

Leu Gln Leu Leu Leu Gly Met Thr Ala Ser Ala Val Ala Ala Leu Ile

```

(2) LENGTH: 56 amino acids  
(3) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -37..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.9  
seq MLIMLGIFNVHS/AV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 414:

```
Met Ala Ser Leu Leu Cys Cys Gly Pro Lys Leu Ala Ala Cys Gly Ile
 -35 -30 -25

Val Leu Ser Ala Trp Gly Val Ile Met Leu Ile Met Leu Gly Ile Phe
 -20 -15 -10

Phe Asn Val His Ser Ala Val Leu Ile Glu Asp Val Pro Phe Thr Glu
 -5 1 5 10

Lys Asp Phe Glu Asn Gly Pro Arg
 15
```

(2) INFORMATION FOR SEQ ID NO: 415:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -20..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.9  
seq XSLFLHAVSSSFT/QL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 415:

```
Met Ile Leu Pro Tyr Arg Met Xaa Ser Leu Phe Leu His Ala Val Ser
-20 -15 -10 -5

Ser Ser Phe Thr Gln Leu Arg Ser Cys Gln Gly Asp Arg Val Trp Arg
 1 5 10
```



## (2) INFORMATION FOR SEQ ID NO: 416:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 78 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -63..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8  
seq LYTVRALAGRAWA/AV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 416:

```

Met Ala Thr Leu Val Glu Leu Pro Asp Ser Val Leu Leu Glu Ile Phe
 -60 -55 -50
Ser Tyr Leu Pro Val Arg Asp Arg Ile Arg Ile Ser Arg Val Cys His
 -45 -40 -35
Arg Trp Lys Arg Leu Val Asp Asp Arg Trp Leu Trp Arg His Val Asp
 -30 -25 -20
Leu Thr Leu Tyr Thr Val Arg Ala Leu Ala Gly Arg Ala Trp Ala Ala
-15 -10 -5 1
Val Ala Val Pro Gly Xaa Arg Arg Pro Pro Leu Pro Pro Trp
 5 10 15

```

## (2) INFORMATION FOR SEQ ID NO: 417:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 92 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -41..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.7  
seq LFSCFCFLSHKFG/KK

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 417:

```

Met Lys Asn Ala Cys Ile Val Leu Pro Pro Thr Pro Pro Pro Ser Leu
 -40 -35 -30

Gln Pro Ser Ala Ser Leu Leu Ala Pro Asn Arg Phe Leu Phe Ser Cys
-25 -20 -15 -10

Phe Cys Phe Leu Ser His Lys Phe Gly Lys Lys Val Ile Tyr Phe Asn
 -5 1 5

Tyr Leu Ser Glu Leu His Glu His Leu Lys Tyr Asp Gln Leu Val Ile
 10 15 20

Pro Pro Glu Val Leu Arg Tyr Asp Glu Lys Leu Gln Ser Leu His Glu
 25 30 35

Gly Arg Thr Pro Xaa Pro Thr Lys Thr Pro Pro Gly
 40 45 50

```

## (2) INFORMATION FOR SEQ ID NO: 418:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 55 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -28..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6  
seq PLQWSLLVAVVAG/SV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 418:

```

Met Ala Phe Gly Leu Gln Met Phe Ile Gln Arg Lys Phe Pro Tyr Pro
 -25 -20 -15

Leu Gln Trp Ser Leu Leu Val Ala Val Val Ala Gly Ser Val Val Ser
 -10 -5 1

Tyr Gly Val Thr Arg Val Xaa Ser Glu Lys Cys Asn Asn Leu Trp Leu
 5 10 15 20

Phe Leu Glu Thr Gly Leu Gly
 25

```

## (2) INFORMATION FOR SEQ ID NO: 419:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 69 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -53..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5  
seq LLWTPLLSPGSLR/VI

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 419:

Met Tyr Cys Lys Ile Leu Val Leu Met Leu His Thr Glu Leu Ile Arg  
          -50                    -45                    -40

Thr Asp Tyr Ser Ser Val Asp Gln Leu Leu Leu Asn Tyr Pro Ala Glu  
          -35                    -30                    -25

Glu Gly Leu Gly Arg Glu Arg Ser Leu Leu Trp Thr Pro Leu Leu Ser  
          -20                    -15                    -10

Pro Gly Ser Leu Arg Val Ile Leu Glu Ser Arg Glu Val Pro Val Ser  
          -5                    1                    5                    10

Leu Trp Pro Gln Thr  
                    15

## (2) INFORMATION FOR SEQ ID NO: 420:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -26..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5  
seq ENSLIILLQGLQG/RV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 420:

```

Met Ala Val Ser His Ser Val Lys Glu Arg Thr Ile Ser Glu Asn Ser
-25 -20 -15

Leu Ile Ile Leu Leu Gln Gly Leu Gln Gly Arg Val Thr Thr Val Asp
-10 -5 1 5

Leu Arg Asp Glu Ser Val Ala His Gly Arg Ile Asp Xaa Val Asp Ala
10 15 20

Phe Met Asn Ile Arg Leu Ala Lys Val Thr Tyr Thr Asp Arg Trp Gly
25 30 35

His Gln Val Lys Leu Asp Asp Leu Phe Val Thr Gly Arg Asn Val Arg
40 45 50

Tyr Val His Ile Pro Asp
55 60

```

## (2) INFORMATION FOR SEQ ID NO: 421:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 91 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.4  
seq QFILLGTTSVVTA/AL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 421:

```

Met Glu Ser Gly Gly Arg Pro Ser Leu Cys Gln Phe Ile Leu Leu Gly
-20 -15 -10

Thr Thr Ser Val Val Thr Ala Ala Leu Tyr Ser Val Tyr Arg Gln Lys
-5 1 5

Ala Arg Val Ser Gln Glu Leu Lys Gly Ala Lys Lys Val His Leu Gly
10 15 20 25

Glu Asp Leu Lys Ser Ile Leu Ser Glu Ala Pro Gly Lys Cys Val Pro
30 35 40

Tyr Ala Val Ile Glu Gly Ala Val Arg Ser Val Lys Glu Thr Leu Asn
45 50 55

Ser Gln Phe Val Glu Asn Cys Xaa Gly Val Arg

```

60

65

## (2) INFORMATION FOR SEQ ID NO: 422:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 142 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -139..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3  
seq GILVPHSLRQAQA/SF

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 422:

```

Met Ala Ala Leu Asp Leu Arg Ala Xaa Trp Ile Arg Trp Ser Cys Ser
 -135 -130 -125

Cys Leu Gly Xaa Leu Xaa Gly Ala Gly Gly Glu Thr Asn Gly Val Glu
 -120 -115 -110

Arg Pro Gly Gly Gly Gly Leu Ala Leu Ala Arg Gln Gly Ser Leu Arg
 -105 -100 -95

Asp Gly Arg Gln Val Gly Arg Ala Pro Ala Val Cys Phe Pro His Gly
 -90 -85 -80

Ala Pro Gly Leu Pro Pro Arg Gln Arg Xaa Xaa Gly Gly Xaa Pro Glu
 -75 -70 -65 -60

Val Gln Gly Gly Glu Ser Trp Cys Pro Arg Pro Arg Gly Gly Gly Ala
 -55 -50 -45

Ser Arg Thr Gly Leu Arg Arg Arg Lys Gly Pro Thr Lys Thr Pro Glu
 -40 -35 -30

Pro Glu Ser Ser Glu Ala Pro Gln Asp Pro Leu Asn Trp Phe Gly Ile
 -25 -20 -15

Leu Val Pro His Ser Leu Arg Gln Ala Gln Ala Ser Phe Arg
 -10 -5 1

```

## (2) INFORMATION FOR SEQ ID NO: 423:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 amino acids
- (B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -21..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.1  
seq WWISLLPSLLSIC/KV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 423:

Met Ala Phe Leu Pro Ser Pro Ala Trp Trp Ile Ser Leu Leu Pro Ser  
-20 -15 -10

Leu Leu Ser Ile Cys Lys Val Leu Met Pro Lys Leu Lys  
-5 1 5

(2) INFORMATION FOR SEQ ID NO: 424:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 127 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -49..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.8  
seq PAFHLPLPGPTLA/FL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 424:

Met Glu Pro Lys Val Ala Glu Leu Lys Gln Lys Ile Glu Asp Thr Leu  
-45 -40 -35

Cys Pro Phe Gly Phe Glu Val Tyr Pro Phe Gln Val Ala Trp Tyr Asn  
-30 -25 -20

Glu Leu Leu Pro Pro Ala Phe His Leu Pro Leu Pro Gly Pro Thr Leu  
-15 -10 -5

Ala Phe Leu Val Leu Ser Thr Pro Ala Met Phe Asp Arg Ala Leu Lys  
1 5 10 15

```

Pro Phe Leu Gln Ser Cys His Leu Arg Met Leu Thr Asp Pro Val Asp
 20 25 30
Gln Cys Val Ala Tyr His Leu Gly Arg Val Arg Glu Ser Leu Pro Glu
 35 40 45
Leu Gln Ile Glu Ile Ile Ala Xaa Xaa Arg Gly Ala Pro Gln Pro Thr
 50 55 60
Pro Gln Asp Pro Gly Pro Asp Ser Ser His Val Ala Gly Ala Ala
 65 70 75

```

## (2) INFORMATION FOR SEQ ID NO: 425:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 98 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -13..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.7  
seq MLVLRSGGTKALA/SR

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 425:

```

Met Leu Val Leu Arg Ser Gly Leu Thr Lys Ala Leu Ala Ser Arg Thr
 -10 -5 1
Leu Ala Pro Gln Val Cys Ser Ser Phe Ala Thr Gly Pro Arg Gln Tyr
 5 10 15
Asp Gly Thr Phe Tyr Glu Phe Arg Thr Tyr Tyr Leu Lys Pro Ser Asn
 20 25 30 35
Met Asn Ala Phe Met Glu Asn Leu Lys Lys Asn Ile His Leu Arg Thr
 40 45 50
Ser Tyr Ser Glu Leu Val Gly Phe Trp Ser Val Glu Phe Gly Gly Arg
 55 60 65
Thr Asn Lys Val Phe His Ile Trp Lys Tyr Asp Asn Phe Ala His Arg
 70 75 80
Ala Glu
 85

```

## (2) INFORMATION FOR SEQ ID NO: 426:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.5  
seq LLFVLLLFSLIPA/CL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 426:

Met Ser Gly Gly His Leu Ala Asp Leu Thr Leu Leu Phe Val Leu Leu  
-20 -15 -10

Leu Phe Ser Leu Leu Pro Ala Cys Leu Pro Arg  
-5 1

## (2) INFORMATION FOR SEQ ID NO: 427:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 54 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -51..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 10.1  
seq LLGALTLLGLVTS/FY

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 427:

Met Lys Pro Ser Arg Thr Pro Ala Arg Leu Trp Met Leu Pro Gln Gln  
-50 -45 -40

Gln Ala Gly Ala Val Val Val Ala Ala Pro Thr Glu Arg His Pro Thr  
-35 -30 -25 -20

His His Met Ala Gly Trp Leu Leu Gly Ala Leu Thr Leu Leu Gly Leu  
-15 -10 -5



Val Thr Ser Phe Tyr Lys  
1

(2) INFORMATION FOR SEQ ID NO: 428:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 131 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -64..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.5  
seq LSLLAALAHLAAA/EK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 428:

```

Met Gly Glu Ser Ile Pro Leu Ala Ala Pro Val Pro Val Glu Gln Ala
 -60 -55 -50

Val Leu Glu Thr Phe Phe Ser His Leu Gly Ile Phe Ser Tyr Asp Lys
 -45 -40 -35

Ala Lys Asp Asn Val Glu Lys Glu Arg Glu Ala Asn Lys Ser Ala Gly
 -30 -25 -20

Gly Ser Trp Leu Ser Leu Leu Ala Ala Leu Ala His Leu Ala Ala Ala
 -15 -10 -5

Glu Lys Val Tyr His Ser Leu Thr Tyr Leu Gly Gln Lys Leu Gly Gly
 1 5 10 15

Gln Ser Phe Phe Ser Arg Lys Asp Ser Ile Arg Thr Ile Tyr Thr Ser
 20 25 30

Leu His Asn Glu Leu Lys Lys Val Val Thr Gly Arg Gly Ala Xaa Xaa
 35 40 45

Trp Asp Cys Ser Ser Arg Gly Arg Thr Pro Phe Pro Pro Val Arg Ala
 50 55 60

Ala Tyr Gly
 65

```

(2) INFORMATION FOR SEQ ID NO: 429:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -38..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.3  
seq QLLYLSLLSGLHG/QE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 429:

```
Met Gln Met Ser Tyr Ala Ile Arg Cys Ala Phe Tyr Gln Leu Leu Leu
 -35 -30 -25

Ala Ala Leu Met Leu Val Ala Met Leu Gln Leu Leu Tyr Leu Ser Leu
 -20 -15 -10

Leu Ser Gly Leu His Gly Gln Glu Glu Gln Asp Gln Tyr Phe Glu Phe
 -5 1 5 10

Phe Pro Pro Ser Pro Arg Ser Val Asp Gln Val Lys Ala Gln Leu Arg
 15 20 25

Thr Ala Leu Ala Ser Gly Gly Val Leu Asp Ala Ser Gly Asp Tyr Arg
 30 35 40

Val Tyr Arg Gly His Gly
 45
```

(2) INFORMATION FOR SEQ ID NO: 430:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 9.1  
seq LFAFHLLLSFILG/SR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 430:

Leu Leu Leu Ser Phe Ile Leu Gly Ser Arg  
-5 1

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 431:

Tyr His Leu Gln Leu Ile Asp Asn Ala Cys Pro Glu  
10 15 20

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -40..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.6  
seq LFCVLGIVLLVTG/IV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 432:

```

Met Ile Ile Thr Ala Val Val Ser Ile Ser Val Thr Ile Phe Cys Phe
-40 -35 -30 -25

Gln Thr Lys Val Asp Phe Thr Ser Cys Thr Gly Leu Phe Cys Val Leu
 -20 -15 -10

Gly Ile Val Leu Leu Val Thr Gly Ile Val Thr Ser Ile Val Leu Tyr
 -5 1 5

Phe Gln Tyr Val Tyr Trp Leu His Met Leu Tyr Ala Ala Leu Gly Ala
 10 15 20

Ile Cys Phe Thr Leu Phe Leu Ala Tyr Asp Thr Gln Leu Val Leu Gly
 25 30 35 40

Asn Arg Lys His

```

(2) INFORMATION FOR SEQ ID NO: 433:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 89 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -65..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 8.4  
seq LLWFIHLVFFVVLX/LF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 433:

```

Met Ala Ala Gly Gly Arg Met Glu Asp Gly Ser Leu Asp Ile Thr Gln
-65 -60 -55 -50

Ser Ile Glu Asp Asp Pro Leu Leu Asp Ala Gln Leu Leu Pro His His
 -45 -40 -35

Ser Leu Gln Ala His Phe Arg Pro Arg Phe His Pro Leu Pro Thr Val

```

-30                      -25                      -20  
 Ile Ile Val Asn Leu Leu Trp Phe Ile His Leu Val Phe Val Val Leu  
          -15                      -10                      -5  
 Xaa Leu Phe Asn Arg Cys Ala Leu Phe Xaa Ser Tyr Pro Lys Trp Asp  
          1                      5                      10                      15  
 Xaa Cys Pro Gly Asn Tyr Thr Asn Pro  
                                  20

## (2) INFORMATION FOR SEQ ID NO: 434:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 59 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.5  
seq GCMLLFVFGFVGG/AV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 434:

Met Ser Pro Gly Cys Met Leu Leu Phe Val Phe Gly Phe Val Gly Gly  
          -15                      -10                      -5  
 Ala Val Val Ile Asn Ser Ala Ile Leu Val Ser Leu Ser Val Leu Leu  
          1                      5                      10                      15  
 Leu Val His Phe Ser Ile Ser Thr Gly Val Pro Ala Leu Thr Gln Asn  
                                  20                      25                      30  
 Leu Pro Arg Ile Leu Arg Lys Glu Arg Pro Gly  
                                  35                      40

## (2) INFORMATION FOR SEQ ID NO: 435:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 67 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -15..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 7.5  
 seq LLLGIALLAYVAS/VW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 435:

```

Met Lys Leu Leu Leu Gly Ile Ala Leu Leu Ala Tyr Val Ala Ser Val
-15 -10 -5 1
Trp Gly Asn Phe Val Asn Met Arg Ser Ile Gln Glu Asn Gly Glu Leu
 5 10 15
Lys Ile Glu Ser Lys Ile Glu Glu Met Val Glu Pro Leu Arg Glu Lys
 20 25 30
Ile Arg Asp Leu Xaa Lys Ser Phe Thr Gln Lys Tyr Pro Pro Val Lys
 35 40 45
Phe Leu Ser
 50

```

(2) INFORMATION FOR SEQ ID NO: 436:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 151 amino acids  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -23..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 7.5  
 seq LVLLLTLPPLHLMA/LL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 436:

```

Met Asp Ile Leu Val Pro Leu Leu Gln Leu Leu Val Leu Leu Leu Thr
 -20 -15 -10
Leu Pro Leu His Leu Met Ala Leu Leu Gly Cys Trp Gln Pro Leu Cys
 -5 1 5
Lys Ser Tyr Phe Pro Tyr Leu Met Ala Val Leu Thr Pro Lys Ser Asn
 10 15 20 25

```

|           |           |           |            |            |           |           |           |           |            |            |           |           |           |            |            |
|-----------|-----------|-----------|------------|------------|-----------|-----------|-----------|-----------|------------|------------|-----------|-----------|-----------|------------|------------|
| Arg       | Lys       | Met       | Glu        | Ser<br>30  | Lys       | Lys       | Arg       | Glu       | Leu<br>35  | Phe        | Ser       | Gln       | Ile       | Lys<br>40  | Gly        |
| Leu       | Thr       | Gly       | Ala<br>45  | Ser        | Gly       | Lys       | Val       | Ala<br>50 | Leu        | Leu        | Glu       | Leu       | Gly<br>55 | Cys        | Gly        |
| Thr       | Gly       | Ala<br>60 | Asn        | Phe        | Gln       | Phe       | Tyr<br>65 | Pro       | Pro        | Gly        | Cys       | Arg<br>70 | Val       | Thr        | Cys        |
| Leu       | Asp<br>75 | Pro       | Asn        | Pro        | His       | Phe<br>80 | Glu       | Lys       | Phe        | Leu        | Thr<br>85 | Lys       | Ser       | Met        | Ala        |
| Glu<br>90 | Asn       | Arg       | His        | Leu        | Gln<br>95 | Tyr       | Glu       | Arg       | Phe        | Val<br>100 | Val       | Ala       | Pro       | Gly        | Glu<br>105 |
| Asp       | Met       | Arg       | Xaa        | Leu<br>110 | Ala       | Asp       | Gly       | Ser       | Met<br>115 | Asp        | Val       | Val       | Val       | Cys<br>120 | Thr        |
| Leu       | Val       | Leu       | Cys<br>125 | Ser        | Val       | Gln       |           |           |            |            |           |           |           |            |            |

(2) INFORMATION FOR SEQ ID NO: 437:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 103 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

(v<sub>i</sub>) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide  
(B) LOCATION: -35..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 7.4  
seq SLLLSLELASGSG/QG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 437:

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Ala | Ala | Ser | Pro | Ser | Asn | Ser | Thr | Gly | Val | Glu | Arg | Xaa | Ala |
| -35 |     |     |     |     | -30 |     |     |     |     | -25 |     |     |     |     | -20 |
| Asp | Leu | Met | Asp | Ala | Asp | Ser | Leu | Leu | Leu | Ser | Leu | Glu | Leu | Ala | Ser |
|     |     |     |     | -15 |     |     |     |     | -10 |     |     |     |     | -5  |     |
| Gly | Ser | Gly | Gln | Gly | Leu | Ser | Pro | Asp | Arg | Arg | Ala | Ser | Leu | Leu | Thr |
|     |     |     | 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |
| Ser | Leu | Met | Leu | Val | Lys | Arg | Asp | Tyr | Arg | Tyr | Asp | Arg | Val | Leu | Phe |
|     | 15  |     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |
| Trp | Gly | Arg | Ile | Leu | Gly | Leu | Val | Ala | Asp | Tyr | Tyr | Ile | Ala | Gln | Gly |
| 30  |     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |

Leu Ser Glu Asp Gln Leu Ala Pro Arg Lys Thr Leu Tyr Arg Ser Arg  
                   50                  55                  60  
 Ser Arg Lys Arg Pro Ala Leu  
                   65

## (2) INFORMATION FOR SEQ ID NO: 438:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 70 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -43..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4  
seq VLVKLLSSSASTS/RP

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 438:

Met Ile Arg Gln Glu Arg Ser Thr Ser Tyr Gln Glu Ala Val Arg Pro  
                   -40                  -35                  -30  
 Ala Leu Pro Ser Ser Lys Pro Cys Leu Leu Thr Ser Pro Ala Val Leu  
                   -25                  -20                  -15  
 Val Lys Leu Leu Ser Ser Ser Ala Ser Thr Ser Arg Pro Pro Asp Leu  
                   -10                  -5                  1                  5  
 Gly His Leu Trp Gln Pro Ser Ser Ser Val Pro Leu His Arg Pro Pro  
                   10                  15                  20  
 His Thr Ala Pro Pro Ala  
                   25

## (2) INFORMATION FOR SEQ ID NO: 439:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 113 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain



## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -41..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4  
seq ILPLLFGCLGVFG/LF

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 439:

```

Met Lys Leu Ile Asp Tyr Gly Leu Ser Gly Tyr Gln Glu Glu Ser Ala
-40 -35 -30

Glu Val Lys Ala Met Asp Phe Ile Thr Ser Thr Ala Ile Leu Pro Leu
-25 -20 -15 -10

Leu Phe Gly Cys Leu Gly Val Phe Gly Leu Phe Arg Leu Leu Gln Trp
 -5 1 5

Val Arg Gly Lys Ala Tyr Leu Arg Asn Ala Val Val Val Ile Thr Gly
 10 15 20

Ala Thr Ser Gly Leu Gly Lys Glu Cys Ala Lys Val Phe Tyr Ala Xaa
 25 30 35

Gly Ala Lys Leu Val Leu Cys Glu Xaa Glu Trp Trp Gly Leu Glu Glu
40 45 50 55

Leu Ile Arg Glu Leu Thr Ala Ser His Ala Thr Lys Val Gln Thr His
 60 65 70

Lys

```

## (2) INFORMATION FOR SEQ ID NO: 440:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 44 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -19..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7.4  
seq PMLLRALAQAARA/GP

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 440:

```

Met Arg Cys Leu Thr Thr Pro Met Leu Leu Arg Ala Leu Ala Gln Ala
 -15 -10 -5

```

Ala Arg Ala Gly Pro Pro Gly Gly Arg Ser Leu His Ser Ser Ala Val  
                   1                                  5                                  10  
 Ala Ala Thr Tyr Lys Tyr Val Asn Met Gln Asp Gln  
           15                                  20                                  25

## (2) INFORMATION FOR SEQ ID NO: 441:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 84 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -67..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 7  
seq IWTLLSSVIRCLC/AI

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 441:

Met Ser Arg Phe Leu Asn Val Leu Arg Ser Trp Leu Val Met Val Ser  
           -65                                  -60                                  -55  
 Ile Ile Ala Met Gly Asn Thr Leu Gln Ser Phe Arg Asp His Thr Phe  
           -50                                  -45                                  -40  
 Leu Tyr Glu Lys Leu Tyr Thr Gly Lys Pro Asn Leu Val Asn Gly Leu  
           -35                                  -30                                  -25                                  -20  
 Gln Ala Arg Thr Phe Gly Ile Trp Thr Leu Leu Ser Ser Val Ile Arg  
                                   -15                                  -10                                  -5  
 Cys Leu Cys Ala Ile Asp Ile His Asn Lys Thr Leu Tyr His Ile Thr  
                                   1                                  5                                  10  
 Leu Trp Thr Phe  
           15

## (2) INFORMATION FOR SEQ ID NO: 442:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -14..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 6.8  
seq IFLTSLDSRVSA/IR

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 442:

Met Ile Phe Leu Thr Leu Ser Leu Asp Ser Arg Val Ser Ala Ile Arg  
                  -10                  -5                  1  
Ser Pro Asn Phe Val Tyr Arg Ser Pro Thr Xaa His Gly  
          5                  10                  15

## (2) INFORMATION FOR SEQ ID NO: 443:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 101 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -29..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 6.8  
seq LIFLCGAALLXVG/IW

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 443:

Met Gln Cys Phe Ser Phe Ile Lys Thr Met Met Ile Leu Phe Asn Leu  
                  -25                  -20                  -15  
Leu Ile Phe Leu Cys Gly Ala Ala Leu Leu Xaa Val Gly Ile Trp Val  
          -10                  -5                  1  
Ser Ile Asp Gly Ala Ser Phe Leu Lys Ile Phe Gly Pro Leu Ser Ser  
          5                  10                  15  
Ser Ala Met Gln Phe Val Asn Val Gly Tyr Phe Leu Ile Ala Ala Gly  
  20                  25                  30                  35  
Val Val Val Phe Ala Leu Gly Phe Leu Gly Cys Tyr Xaa Ala Lys Thr  
          40                  45                  50  
Glu Ser Xaa Cys Ala Leu Val Thr Phe Phe Xaa Ile Leu Leu Leu Ile  
          55                  60                  65

Phe Ile Ala Asp Val  
70

(2) INFORMATION FOR SEQ ID NO: 444:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 97 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -35..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.4  
seq SACLLLCPTWTNP/QL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 444:

```

Met Ala Glu Ala Ala Leu Glu Ala Val Arg Xaa Ser Tyr Glu Asn Ser
-35 -30 -25 -20

Arg Pro Leu Gln Gly Ser Ser Ala Cys Leu Leu Leu Cys Pro Thr Trp
 -15 -10 -5

Thr Asn Pro Gln Leu Arg Ser Thr Ser Thr Gly Thr Gly Ser Ala Pro
 1 5 10

Thr Gly Arg Ala Leu Ser Ala Thr Leu Cys Ser Thr Gly Arg Pro Ser
 15 20 25

Xaa Xaa Trp Ser Leu Pro Tyr Phe Arg Ala Thr Val Gly Ser Thr Glu
 30 35 40 45

Val Ser Val Ala Val Thr Pro Asp Gly Tyr Ala Asp Ala Val Arg Xaa
 50 55 60

```

Asp

(2) INFORMATION FOR SEQ ID NO: 445:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -19..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 6.4  
seq SVFLLMVNGQVES/AQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 445:

Met Ala Thr Ala Ser Pro Ser Val Phe Leu Leu Met Val Asn Gly Gln  
                  -15                  -10                  -5  
Val Glu Ser Ala Gln Phe Pro Glu Tyr Asp Asp Leu Tyr Cys Lys Tyr  
                  1                  5                  10  
Cys Gln  
          15

(2) INFORMATION FOR SEQ ID NO: 446:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -28..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 6  
seq IGLMFLMLGALP/IY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 446:

Met Ala Gly Ile Lys Ala Leu Ile Ser Leu Ser Phe Gly Gly Ala Ile  
                  -25                  -20                  -15  
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys  
                  -10                  -5                  1  
Tyr Trp Pro Trp  
          5

(2) INFORMATION FOR SEQ ID NO: 447:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 39 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -17..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 5.9  
seq ILLFGTLLMNAGA/VL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 447:

Met Ile Gly Asp Ile Leu Leu Phe Gly Thr Leu Leu Met Asn Ala Gly  
-15 -10 -5  
Ala Val Leu Asn Phe Lys Leu Lys Lys Lys Asp Thr Gln Gly Phe Gly  
1 5 10 15  
Glu Glu Ser Arg Glu Pro Trp  
20

(2) INFORMATION FOR SEQ ID NO: 448:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -16..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 5.9  
seq MILTSLFGSCIS/NF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 448:

Met Lys Thr Met Ile Leu Thr Leu Ser Leu Phe Gly Ser Cys Ile Ser  
-15 -10 -5  
Asn Phe Glu Arg Tyr Met Thr Glu Arg Ser Ile Gln  
1 5 10

## (2) INFORMATION FOR SEQ ID NO: 449:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 82 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -39..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.9  
seq SVSVLSSLGIVLA/VV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 449:

```

Met Asp Trp Arg Val Pro Pro Ser Xaa Xaa Asp Pro Gly His Gln Asp
 -35 -30 -25

Ile Pro Leu Pro Val Thr Xaa Xaa Phe Ile Ser Val Ser Val Leu Ser
 -20 -15 -10

Ser Leu Gly Ile Val Leu Ala Val Val Cys Leu Ser Phe Asn Ile Tyr
 -5 1 5

Asn Ser His Val Arg Tyr Ile Gln Asn Ser Gln Pro Asn Leu Asn Asn
 10 15 20 25

Leu Thr Ala Val Gly Cys Ser Xaa Ala Leu Ala Ala Val Phe Pro Trp
 30 35 40

Gly Ser

```

## (2) INFORMATION FOR SEQ ID NO: 450:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 113 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.8

seq AALPAWLSLQSRA/RT

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 450:

Met Ala Ala Ala Ala Leu Pro Ala Trp Leu Ser Leu Gln Ser Arg Ala  
 -15 -10 -5

Arg Thr Leu Arg Ala Phe Ser Thr Ala Val Tyr Ser Ala Thr Pro Val  
 1 5 10 15

Pro Xaa Pro Ser Leu Pro Glu Arg Thr Pro Gly Asn Glu Arg Pro Pro  
 20 25 30

Arg Arg Lys Ala Leu Pro Pro Arg Thr Glu Lys Met Ala Val Asp Gln  
 35 40 45

Asp Trp Pro Xaa Val Tyr Pro Val Ala Ala Pro Phe Lys Pro Ser Ala  
 50 55 60

Val Pro Leu Pro Val Arg Met Gly Tyr Pro Val Lys Lys Gly Val Pro  
 65 70 75 80

Trp Xaa Arg Arg Glu Ser Xaa Thr Phe Lys Asp Ser Asn Phe Leu His  
 85 90 95

Leu

## (2) INFORMATION FOR SEQ ID NO: 451:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -25..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.8  
seq LWISACAMLLCHG/SL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 451:

Met Ala Met Val Ser Ala Met Ser Trp Val Leu Tyr Leu Trp Ile Ser  
 -25 -20 -15 -10

Ala Cys Ala Met Leu Leu Cys His Gly Ser Leu Gln Arg  
 -5 1



## (2) INFORMATION FOR SEQ ID NO: 452:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 78 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -69..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.7  
seq LCRLCLVRLFCC/SS

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 452:

```

Met Gly Lys Glu Trp Gly Trp Gln Glu Met Glu Asn Gly Gly Ala Ala
 -65 -60 -55

Pro Ala Trp Gly Ala Gly Pro Pro Val His Pro Ala Pro Pro Pro Val
 -50 -45 -40

Glu Lys Thr Leu Ser Trp Gly Cys Gly Phe Gly Leu His Ser Gly Phe
 -35 -30 -25

Gly Gly Ser Gly Gly Gly Val Gly Leu Cys Arg Leu Leu Cys Leu Val
 -20 -15 -10

Arg Leu Phe Cys Cys Ser Ser Ile Leu Tyr Gln Arg Gln Gly
 -5 1 5

```

## (2) INFORMATION FOR SEQ ID NO: 453:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 65 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -21..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.6  
seq LVLSLQFLLLSYD/LF

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 453:

Met Leu Gln Thr Ser Asn Tyr Ser Leu Val Leu Ser Leu Gln Phe Leu  
 -20 -15 -10

Leu Leu Ser Tyr Asp Leu Phe Val Asn Ser Phe Ser Glu Leu Leu Gln  
 -5 1 5 10

Lys Thr Pro Val Ile Gln Leu Val Leu Phe Ile Ile Gln Asp Ile Ala  
 15 20 25

Val Leu Phe Asn Ile Ile Ile Ile Phe Leu Met Phe Phe Asn Thr Ser  
 30 35 40

Arg

## (2) INFORMATION FOR SEQ ID NO: 454:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5  
seq MGVCLLIPGLATA/CI

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 454:

Met Trp Phe Glu Ile Leu Pro Gly Leu Ser Val Met Gly Val Cys Leu  
 -20 -15 -10

Leu Ile Pro Gly Leu Ala Thr Ala Cys Ile Arg  
 -5 1

## (2) INFORMATION FOR SEQ ID NO: 455:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -22..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.5  
seq LADPLXLFPFSEG/LP

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 455:

Met Arg Pro Ser Pro Leu Ser Gly Ile Leu Ala Asp Pro Leu Xaa Leu  
-20 -15 -10

Phe Pro Phe Ser Glu Gly Leu Pro Arg Arg Arg Ala Ala Ser Arg Ser  
-5 1 5 10

Arg Leu Gln Thr Pro Ser Ala Arg Cys Ser Pro Arg Pro Gly  
15 20

## (2) INFORMATION FOR SEQ ID NO: 456:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -27..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 5.4  
seq SLMMAQXFIPAVA/KV

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 456:

Met Arg Glu Ser Leu Ser Xaa Arg Ser Trp His Leu Pro Ala Ser Leu  
-25 -20 -15

Met Met Ala Gln Xaa Phe Ile Pro Ala Val Ala Lys Val Gly  
-10 -5 1

## (2) INFORMATION FOR SEQ ID NO: 457:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 60 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -58..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 5.4  
seq LSLHLLATRACYG/IL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 457:

Met Ser Gly Val Val Pro Thr Ala Pro Glu Gln Pro Ala Xaa Glu Met  
-55 -50 -45  
Glu Asn Gln Thr Lys Pro Pro Asp Pro Arg Pro Asp Ala Pro Pro Glu  
-40 -35 -30  
Tyr Ser Ser His Xaa Phe Thr Arg Thr Pro Trp Lys Gln Leu Ser Leu  
-25 -20 -15  
His Leu Leu Ala Thr Arg Ala Cys Tyr Gly Ile Leu  
-10 -5 1

## (2) INFORMATION FOR SEQ ID NO: 458:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 83 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

## (ix) FEATURE:

(A) NAME/KEY: sig\_peptide  
(B) LOCATION: -77..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 5.3  
seq TWVFTCLVFFCFG/LS

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 458:

Met Trp Arg Tyr Gln Phe Gly Trp Gly Val Ile Thr Arg Gly Pro Arg  
-75 -70 -65  
Glu Ile Pro Phe Pro Pro Ser Leu Leu Ala Ser Glu Ser Leu Leu Pro  
-60 -55 -50  
Pro Leu Pro Asp Leu Val Leu Thr Cys Thr Ser Leu Gly Phe Val Thr  
-45 -40 -35 -30

Arg Val Trp Met Ser Leu Asn Leu Asn Glu Leu Ser Leu Tyr Ser Arg  
-25 -20 -15

Thr Trp Val Phe Thr Cys Leu Val Phe Phe Cys Phe Gly Leu Ser Xaa  
-10 -5 1

Ser Leu Gly  
5

(2) INFORMATION FOR SEQ ID NO: 459:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 39 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide  
(B) LOCATION: -29..-1  
(C) IDENTIFICATION METHOD: Von Heijne matrix  
(D) OTHER INFORMATION: score 5.2  
seq FFMLLGSLLPVKI/IE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 459:

```

Met Val Lys Leu Leu Val Ala Lys Ile Leu Cys Met Val Gly Val Phe
 -25 -20 -15

Phe Phe Met Leu Leu Gly Ser Leu Leu Pro Val Lys Ile Ile Glu Thr
 -10 -5 1

Asp Phe Glu Lys Ala Pro Gly
 5 10

```

(2) INFORMATION FOR SEQ ID NO: 460:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 amino acids  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens  
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- ```
(A) NAME/KEY: sig_peptide
(B) LOCATION: -17..-1
```

(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq IMCLIGLKANASS/ET

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 460:

Met Pro Val Ser Ile Met Cys Leu Ile Gly Leu Lys Ala Asn Ala Ser
-15 -10 -5

Ser Glu Thr His Ser Gly
1 5

(2) INFORMATION FOR SEQ ID NO: 461:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -17..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 5.2
seq LLYLVLEKLVSRA/FQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 461:

Met Lys Val Ile Leu Leu Tyr Leu Val Leu Glu Lys Leu Val Ser Arg
-15 -10 -5

Ala Phe Gln Asn Val Glu Ala Pro His Gly
1 5

(2) INFORMATION FOR SEQ ID NO: 462:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 46 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -19..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.1
 seq LLLGGRVCXPSLA/VG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 462:

```

Met Ala Val Thr Leu Ser Leu Leu Leu Gly Gly Arg Val Cys Xaa Pro
      -15                      -10                      -5

Ser Leu Ala Val Gly Ser Arg Pro Gly Gly Trp Arg Ala Gln Ala Leu
      1                      5                      10

Leu Ala Gly Ser Arg Thr Pro Ile Pro Thr Gly Asn Arg Arg
      15                      20                      25
  
```

(2) INFORMATION FOR SEQ ID NO: 463:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 49 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
 (F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
 (B) LOCATION: -23..-1
 (C) IDENTIFICATION METHOD: Von Heijne matrix
 (D) OTHER INFORMATION: score 5.1
 seq LLPELGVVTPAQG/PR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 463:

```

Met Leu Asn Gln Thr Ser Gly Arg Thr Ser Leu Leu Pro Glu Leu Gly
      -20                      -15                      -10

Val Val Thr Pro Ala Gln Gly Pro Arg Arg Arg Val Trp Cys Gly His
      -5                      1                      5

Ser Lys Ala Lys Ala Arg Lys Ser Tyr Cys Ala Arg Ala Ile Asp Cys
      10                      15                      20                      25

Gln
  
```

(2) INFORMATION FOR SEQ ID NO: 464:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 135 amino acids
 (B) TYPE: AMINO ACID
 (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

(B) LOCATION: -79..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 5

seq SFLGFSAPTPIQA/LT

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 464:

```

Met Thr Ser Glu Asn Leu Val Gln Thr Ala Pro Lys Lys Lys Lys Asn
          -75                      -70                      -65

Lys Gly Lys Lys Gly Leu Glu Pro Ser Gln Ser Thr Ala Ala Lys Val
          -60                      -55                      -50

Pro Lys Lys Ala Lys Thr Trp Ile Pro Glu Val His Asp Gln Lys Ala
          -45                      -40                      -35

Asp Val Ser Ala Trp Lys Asp Leu Phe Val Pro Arg Pro Val Leu Arg
          -30                      -25                      -20

Ala Leu Ser Phe Leu Gly Phe Ser Ala Pro Thr Pro Ile Gln Ala Leu
          -15                      -10                      -5                      1

Thr Leu Ala Pro Ala Ile Arg Asp Lys Leu Asp Ile Leu Gly Ala Ala
          5                      10                      15

Glu Thr Gly Ser Gly Lys Thr Leu Ala Phe Ala Ile Pro Met Ile His
          20                      25                      30

Ala Val Leu Gln Trp Gln Lys Arg Asn Ala Ala Pro Pro Pro Ser Asn
          35                      40                      45

Thr Glu Ala Pro Pro Gly Glu
          50                      55

```

(2) INFORMATION FOR SEQ ID NO: 465:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 79 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide

- (B) LOCATION: -23..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.9
seq WHXLIPLTWACMA/RQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 465:

```

Met Ala Ala Phe Gly Arg Gln Xaa Xaa Xaa Trp His Xaa Leu Ile Pro
    -20                      -15                      -10

Leu Thr Trp Ala Cys Met Ala Arg Gln Thr Pro His Leu Gly Glu Gln
    -5                      1                      5

Arg Arg Thr Thr Ala Ser Leu Xaa Arg Lys Leu Thr Thr Ala Ser Asn
    10                      15                      20                      25

Gly Gly Val Ile Glu Glu Leu Ser Cys Val Arg Ser Asn Asn Tyr Val
    30                      35                      40

Gln Glu Pro Glu Cys Arg Arg Asn Leu Val Gln Cys Leu Leu Trp
    45                      50                      55

```

(2) INFORMATION FOR SEQ ID NO: 466:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 68 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -57..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.9
seq GWFLSGCPHGSSA/TW

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 466:

```

Met Ser Leu Thr Ser Ser Pro Lys Lys Arg Arg Ser Ile Cys Phe Asp
    -55                      -50                      -45

Arg Phe Leu Met Pro Gln Ser Gln Ser Gly Pro Ser Ser Leu Gly Glu
    -40                      -35                      -30

Ser Tyr Arg Thr Gly Val Gly Phe Leu Ile Pro Glu Gly Trp Phe Leu
    -25                      -20                      -15                      -10

Ser Gly Cys Pro His Gly Ser Ser Ala Thr Trp Thr Lys Cys Gln Thr
    -5                      1                      5

Ser Ala Ser Leu

```

10

(2) INFORMATION FOR SEQ ID NO: 467:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -39..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8
seq SLXFCLSPPPSPS/LR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 467:

Met Gly Glu Leu Gly Asn Arg Ser Arg Cys Ile Leu Phe Leu Ser Glu
 -35 -30 -25

Asn Pro Cys Leu Ser Glu Ser Ile Phe Gln Ser Leu Xaa Phe Cys Leu
 -20 -15 -10

Ser Pro Pro Pro Ser Pro Ser Leu Arg Pro Ser Pro Ser Arg
 -5 1 5

(2) INFORMATION FOR SEQ ID NO: 468:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 111 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -93..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.7
seq VLLLRQXFAQAEK/WY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 468:

[illegible]

(2) INFORMATION FOR SEQ ID NO: 470:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -68..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.6
seq LPFSLVSMMLVTQG/LV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 470:

```

Met Ala Ser Ala Ser Ala Arg Gly Asn Gln Asp Lys Asp Ala His Phe
   -65                               -60                       -55

Pro Pro Pro Ser Lys Gln Ser Leu Leu Phe Cys Pro Lys Xaa Xaa Leu
   -50                               -45                       -40

His Ile His Arg Ala Glu Ile Ser Lys Ile Met Arg Glu Cys Gln Glu
   -35                               -30                       -25

Glu Ser Phe Trp Lys Arg Ala Leu Pro Phe Ser Leu Val Ser Met Leu
   -20                               -15                       -10                       -5

Val Thr Gln Gly Leu Val Tyr Gln Gly Tyr Leu Ala Ala Asn Ser Arg
          1                               5                       10

```

(2) INFORMATION FOR SEQ ID NO: 471:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 71 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -69..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq FILSLCVLCIVLT/TG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 471:

```

Met Leu Leu Met Lys Ser Ile Leu Leu Lys Val Val Cys Val Leu Cys
      -65                      -60                      -55

Ile Tyr Leu Lys Phe Lys Leu Met Ala Leu Ile Tyr Val Pro Asp Lys
      -50                      -45                      -40

Asn Asn Thr Asn Asn Asn Ile Leu Arg Tyr Asn His Asn Glu Ile Ser
      -35                      -30                      -25

Ile Gly Ile Ser Val Gln Cys His Phe Ile Leu Ser Leu Cys Val Leu
      -20                      -15                      -10

Cys Ile Val Leu Thr Thr Gly
      -5                      1

```

(2) INFORMATION FOR SEQ ID NO: 472:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 50 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.5
seq RLLRRFLASVIS/RK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 472:

```

Met Ala Gln Arg Leu Leu Leu Arg Arg Phe Leu Ala Ser Val Ile Ser
      -15                      -10                      -5

Arg Lys Pro Ser Gln Gly Gln Trp Pro Pro Leu Thr Ser Arg Ala Leu
      1                      5                      10                      15

Gln Thr Pro Xaa Cys Ser Xaa Gly Gly Leu Thr Val Thr Pro Asn Pro
      20                      25                      30

Ser Arg

```

(2) INFORMATION FOR SEQ ID NO: 473:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 103 amino acids

(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -77..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.4
seq FEARIALLLPLLQA/ET

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 473:

```
Met Ala Ala Ser Lys Val Lys Gln Asp Met Pro Pro Xaa Gly Gly Tyr
   -75                -70                -65

Gly Pro Ile Asp Tyr Lys Arg Asn Leu Pro Arg Arg Gly Leu Ser Gly
   -60                -55                -50

Tyr Ser Met Leu Ala Ile Gly Ile Gly Thr Leu Ile Tyr Gly His Trp
  -45                -40                -35                -30

Ser Ile Met Lys Trp Asn Arg Glu Arg Arg Arg Leu Gln Ile Glu Asp
      -25                -20                -15

Phe Glu Ala Arg Ile Ala Leu Leu Pro Leu Leu Gln Ala Glu Thr Asp
      -10                -5                1

Arg Arg Thr Leu Gln Met Leu Arg Glu Asn Leu Glu Glu Glu Ala Ile
   5                10                15

Ile Met Lys Asp Val Pro Gly
  20                25
```

(2) INFORMATION FOR SEQ ID NO: 474:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 77 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -54..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.3
seq LLSLAILSHISTP/GC

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 474:

Met Arg His Leu Val Thr Glu Glu Leu Phe Pro Cys Ser Asn Leu Glu
 -50 -45 -40

Asp Val Val Glu Asp Asn Ser His Ser Tyr Phe Thr Leu Arg Ile Thr
 -35 -30 -25

Met Ala Cys Lys Gly Val Pro Ser Thr Leu Leu Ser Leu Ala Ile Leu
 -20 -15 -10

Ser His Ile Ser Thr Pro Gly Cys Glu Trp His Val Ile Tyr Val Ser
 -5 1 5 10

Ser Xaa Gly Leu Tyr Leu Val Val Glu Met Thr Asp Arg
 15 20

(2) INFORMATION FOR SEQ ID NO: 475:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -76..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3
seq FRLXVFAYGTYA/DY

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 475:

Met Ser Ala Glu Val Lys Val Thr Gly Gln Asn Gln Glu Gln Phe Leu
 -75 -70 -65

Leu Leu Ala Lys Ser Ala Lys Gly Ala Ala Leu Ala Thr Leu Ile His
 -60 -55 -50 -45

Gln Val Leu Glu Ala Pro Gly Val Tyr Val Phe Gly Glu Leu Leu Asp
 -40 -35 -30

Met Pro Asn Val Arg Glu Leu Ala Glu Ser Xaa Phe Ala Ser Thr Phe
 -25 -20 -15

Arg Leu Leu Xaa Val Phe Ala Tyr Gly Thr Tyr Ala Asp Tyr Xaa Ala
 -10 -5 1

(2) INFORMATION FOR SEQ ID NO: 476:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -34..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.3
seq QLFAFLNLLPVEA/DI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 476:

Met Leu Leu Ser Ile Gly Met Leu Met Leu Ser Ala Thr Gln Val Xaa
 -30 -25 -20

Thr Ile Leu Xaa Val Gln Leu Phe Ala Phe Leu Asn Leu Leu Pro Val
 -15 -10 -5

Glu Ala Asp Ile Xaa Ala Tyr Asn Phe Glu Asn Ala Ser
 1 5 10

(2) INFORMATION FOR SEQ ID NO: 477:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.2
seq EVVSLSYCGVSWG/RI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 477:

Met Gly Trp Glu Val Val Ser Leu Ser Tyr Cys Gly Val Ser Trp Gly
 -15 -10 -5

Arg Ile Ser Pro Asn Leu Asn Lys Pro Val Asn Arg

1

5

10

(2) INFORMATION FOR SEQ ID NO: 478:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 72 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -32..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.2
seq CWELFCLEHGIQA/DG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 478:

```

Met Arg Glu Cys Ile Ser Val His Val Gly Gln Ala Gly Val Gln Ile
      -30                -25                -20

Gly Asn Ala Cys Trp Glu Leu Phe Cys Leu Glu His Gly Ile Gln Ala
      -15                -10                -5

Asp Gly Thr Phe Asp Ala Gln Ala Ser Lys Ile Asn Asp Asp Asp Ser
  1          5          10          15

Phe Thr Thr Phe Phe Ser Glu Thr Gly Thr Ser Leu Leu Met Glu Arg
      20                25                30

Leu Xaa Leu Asp Tyr Gly Lys Lys
      35                40

```

(2) INFORMATION FOR SEQ ID NO: 479:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -25..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4.2
seq LDLLRGLPRVSLA/NL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 479:

```
Met Ala Gly Pro Leu Gln Gly Gly Gly Ala Arg Ala Leu Asp Leu Leu
-25                -20                -15                -10

Arg Gly Leu Pro Arg Val Ser Leu Ala Asn Leu Lys Pro Asn Pro Gly
          -5                      1                      5

Ser Lys Lys Pro Glu Arg Arg Pro Arg Gly Arg Arg Arg Trp
      10                15                20
```

(2) INFORMATION FOR SEQ ID NO: 480:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 68 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -25..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.2
seq MFAASXLAMCAGA/EV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 480:

```
Met Pro Ala Gly Val Pro Met Ser Thr Tyr Leu Lys Met Phe Ala Ala
-25                -20                -15                -10

Ser Xaa Leu Ala Met Cys Ala Gly Ala Glu Val Val His Arg Tyr Tyr
          -5                      1                      5

Arg Pro Asp Leu Thr Ile Pro Glu Ile Pro Pro Lys Arg Gly Glu Leu
      10                15                20

Lys Thr Glu Leu Leu Gly Leu Lys Glu Arg Lys His Lys Pro Gln Val
      25                30                35

Ser Gln Gln Glu
      40
```

(2) INFORMATION FOR SEQ ID NO: 481:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 82 amino acids

(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -24..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.2
seq SLPALALSLRASP/RX

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 481:

Met Ala Val Gln Cys Val Arg Leu Ala Arg Arg Ser Leu Pro Ala Leu
 -20 -15 -10
Ala Leu Ser Leu Arg Ala Ser Pro Arg Xaa Leu Cys Thr Ala Thr Lys
 -5 1 5
Gln Lys Asn Ser Gly Gln Asn Leu Glu Glu Asp Met Gly Gln Ser Glu
 10 15 20
Gln Lys Ala Asp Pro Pro Ala Thr Glu Lys Thr Leu Leu Glu Glu Lys
 25 30 35 40
Val Lys Leu Glu Glu Gln Leu Lys Glu Thr Val Glu Lys Tyr Lys Arg
 45 50 55
Ala Arg

(2) INFORMATION FOR SEQ ID NO: 482:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 42 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -37..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 4.2
seq RLMHHYLSTPTSA/RP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 482:

Met Phe Ser Ile Ile Ser Arg Ser Arg Ala Cys Ser Met Tyr Phe Lys
-35 -30 -25
Glu Asn Ala Lys Pro Ser Gln Leu Arg Leu Met His His Tyr Leu Ser
-20 -15 -10
Thr Pro Thr Ser Ala Arg Pro His His Leu
-5 1 5

(2) INFORMATION FOR SEQ ID NO: 483:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -16..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.1
seq LLPATSLAGPVLS/TL

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 483:

Met Lys Arg Leu Leu Pro Ala Thr Ser Leu Ala Gly Pro Val Leu Ser
-15 -10 -5
Thr Leu Ile Ala Pro Thr Pro Met Leu Phe Cys Glu Asp Lys Ser Trp
1 5 10 15
Asp Pro Gly

(2) INFORMATION FOR SEQ ID NO: 484:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 98 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -70..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 4
seq IAVLYLHLYDVFG/DP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 484:

```

Met Leu Ile Ile Thr Asn Pro Trp Pro Lys Tyr Phe Asp Ala Ala Gly
-70                -65                -60                -55

Arg Leu Thr Pro Glu Phe Ser Gln Arg Leu Thr Asn Lys Ile Arg Glu
                -50                -45                -40

Leu Leu Gln Gln Met Glu Arg Gly Leu Lys Ser Ala Asp Xaa Xaa Asp
                -35                -30                -25

Gly Thr Gly Tyr Thr Gly Trp Ala Gly Ile Ala Val Leu Tyr Leu His
                -20                -15                -10

Leu Tyr Asp Val Phe Gly Asp Pro Ala Tyr Leu Gln Leu Ala His Gly
                -5                1                5                10

Tyr Val Lys Gln Ser Leu Asn Cys Leu Thr Lys Arg Ser Ile Thr Phe
                15                20                25

Gln Gly

```

(2) INFORMATION FOR SEQ ID NO: 485:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 47 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide..
- (B) LOCATION: -21..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq AWLAQGSSSAGWG/LE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 485:

```

Met Cys Ala Thr Glu Thr Val Arg Ala Trp Leu Ala Gln Gly Ser Ser
-20                -15                -10

Ser Ala Gly Trp Gly Leu Glu Arg Lys Gln Gly Val Ser Ala His Arg
-5                1                5                10

Met Pro Ala Leu Arg Trp Leu Gln Lys Ser Val Pro Gly Xaa Met
                15                20                25

```

(2) INFORMATION FOR SEQ ID NO: 486:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 48 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -46..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq AAAFCLKXXGANT/HP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 486:

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Leu | Leu | Leu | Ala | Thr | His | Pro | Glu | Thr | Val | Gly | Gln | Val | Thr | Leu | |
| -45 | | | | | -40 | | | | | | -35 | | | | | |
| Arg | Val | Xaa | Pro | Val | Ser | Leu | Glu | Val | Ser | Ile | Gln | Met | Cys | Ala | Ala | |
| -30 | | | | | -25 | | | | -20 | | | | | | -15 | |
| Ala | Ala | Ala | Ala | Phe | Cys | Leu | Lys | Xaa | Xaa | Gly | Ala | Asn | Thr | His | Pro | |
| | | | | -10 | | | | | -5 | | | | | | 1 | |

(2) INFORMATION FOR SEQ ID NO: 487:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
- (B) LOCATION: -64..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.9
seq GLGGAQLQGGAXG/RG

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 487:

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Ala | Ser | Ser | Ala | Thr | Pro | Ala | Pro | Xaa | Xaa | Ser | Gln | Arg | Cys | |
| | | | | -60 | | | | | -55 | | | | | | -50 | |

Gly Ala Asp Ala Gly Ser Ala Ala Arg Ile Val Phe Arg Trp Gly Arg
-45 -40 -35

Gly Arg Arg Gly Ala Arg Ser Pro Glu Gly Ser Gly His His Gly Arg
-30 -25 -20

Ala Asn Ser Gly Leu Gly Gly Ala Gln Leu Gln Gly Gly Ala Xaa Gly
-15 -10 -5

Arg Gly Ser Met Ala Pro Leu Arg Ala Ser Ala Gly Gln Thr Arg Asp
1 5 10 15

Gly Pro Thr Gln Pro Gly
20

(2) INFORMATION FOR SEQ ID NO: 488:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 50 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig_peptide
(B) LOCATION: -17..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.9
seq PLAGLAAAAALGRA/PP

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 488:

```

Met Leu Arg Arg Pro Leu Ala Gly Leu Ala Ala Ala Ala Leu Gly Arg
      -15                -10                -5

Ala Pro Pro Asp Gly Leu Leu Cys Ser Leu Pro Gly Val Ala Val Glu
      1                5                10                15

Asp Pro Val Gln Asp Ser Ala Gly Phe Ser Phe Ser Leu Met Asp Arg
      20                25                30

Pro Lys

```

(2) INFORMATION FOR SEQ ID NO: 489:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 53 amino acids
(B) TYPE: AMINO ACID
(C) TOPOLOGY: LINEAR

(11) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -17..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq GFVAALVAGGVAG/VS

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 489:

Met Asp Arg Pro Gly Phe Val Ala Ala Leu Val Ala Gly Gly Val Ala
-15 -10 -5
Gly Val Ser Val Asp Leu Ile Leu Phe Pro Leu Asp Thr Ile Lys Thr
1 5 10 15
Arg Leu Gln Ser Pro Gln Gly Phe Ser Lys Ala Gly Gly Phe His Gly
20 25 30
Ile Tyr Ala Ser Trp
35

(2) INFORMATION FOR SEQ ID NO: 490:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 50 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -21..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq SMDLLTLLFQRRS/HQ

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 490:

Met Ile Val Trp Phe Glu Gly Ile Ser Met Asp Leu Leu Thr Leu Leu
-20 -15 -10
Phe Gln Arg Arg Ser His Gln Val Thr Gln Leu Leu Val Ser Ser Thr
-5 1 5 10
Gly Asn Trp Leu Arg Gln Tyr Leu Cys Ala Ser Leu Thr Ile Ala Gly
15 20 25

Arg Arg

(2) INFORMATION FOR SEQ ID NO: 491:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 50 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig_peptide
(B) LOCATION: -20..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
seq ALDALMFPPARRRA/AV

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 491:

```

Met Arg Thr Phe Val His Phe Ala Leu Asp Ala Leu Met Phe Pro Ala
-20                               -15          -10          -5

Arg Arg Arg Ala Ala Val Thr Arg Leu Ser Glu Arg Leu Ser Leu Cys
                        1              5              10

Phe Cys Leu His Ser Arg Leu Gln Asp Pro Ala Ala Arg Pro Arg Pro
      15              20              25

Ser Trp
      30

```

(2) INFORMATION FOR SEQ ID NO: 492:

(i). SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 99 amino acids
(B) TYPE: AMINO ACID
(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
(F) TISSUE TYPE: Brain

(ix) FEATURE:

- ```
(A) NAME/KEY: sig_peptide
(B) LOCATION: -61..-1
(C) IDENTIFICATION METHOD: Von Heijne matrix
(D) OTHER INFORMATION: score 3.8
 seq LVMTFLFRNGSLQ/EK
```

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 492:

Met Ala Ala Pro Pro Gln Leu Arg Ala Leu Leu Val Val Val Asn Ala  
 -60 -55 -50

Leu Leu Arg Lys Arg Arg Tyr His Ala Ala Leu Ala Val Leu Lys Gly  
 -45 -40 -35 -30

Phe Arg Asn Gly Ala Val Tyr Gly Ala Lys Ile Arg Ala Pro His Ala  
 -25 -20 -15

Leu Val Met Thr Phe Leu Phe Arg Asn Gly Ser Leu Gln Glu Lys Leu  
 -10 -5 1

Trp Ala Ile Leu Gln Ala Thr Tyr Ile His Ser Trp Asn Leu Ala Arg  
 5 10 15

Phe Val Phe Thr Tyr Lys Gly Leu Arg Ala Leu Gln Ser Tyr Ile Gln  
 20 25 30 35

Gly Pro Gly

## (2) INFORMATION FOR SEQ ID NO: 493:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 79 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -18...-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.8  
seq GXALGLLPSLAKA/ED

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 493:

Met Pro Val Asp Leu Gly Xaa Ala Leu Gly Leu Leu Pro Ser Leu Ala  
 -15 -10 -5

Lys Ala Glu Asp Ser Gln Phe Ser Glu Ser Asp Ala Ala Leu Gln Glu  
 1 5 10

Glu Leu Ser Ser Pro Glu Thr Ala Arg Gln Leu Phe Arg Gln Phe Arg  
 15 20 25 30

Tyr Gln Val Met Ser Gly Pro His Glu Thr Leu Lys Xaa Leu Arg Lys  
 35 40 45

Leu Cys Phe Gln Trp Leu Gln Pro Glu Val His Thr Lys Glu Gly

50

55

60

## (2) INFORMATION FOR SEQ ID NO: 494:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 139 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -72..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.8  
seq LMGLALAVYKCQS/MG

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 494:

```

Met Asn Leu Phe Ile Met Tyr Met Ala Gly Asn Thr Ile Ser Ile Phe
 -70 -65 -60

Pro Thr Met Met Val Cys Met Met Ala Trp Arg Pro Ile Gln Ala Leu
 -55 -50 -45

Met Ala Ile Ser Ala Thr Phe Lys Met Leu Glu Ser Ser Ser Gln Lys
 -40 -35 -30 -25

Phe Leu Gln Gly Leu Val Tyr Leu Ile Gly Asn Leu Met Gly Leu Ala
 -20 -15 -10

Leu Ala Val Tyr Lys Cys Gln Ser Met Gly Leu Leu Pro Thr His Ala
 -5 1 5

Ser Asp Trp Leu Ala Phe Ile Glu Pro Pro Glu Arg Met Glu Ser Val
 10 15 20

Val Glu Asp Cys Phe Cys Glu His Glu Lys Ala Ala Pro Gly Pro Tyr
 25 30 35 40

Val Phe Gly Ser Tyr Leu His Pro Ser Leu Ser Pro Val Ala Pro Gln
 45 50 55

His Thr Leu Lys Leu Ile Thr Tyr Val Lys Lys
 60 65

```

## (2) INFORMATION FOR SEQ ID NO: 495:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 102 amino acids
- (B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -51..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.8  
seq NVLFVAGLAFVIG/LE

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 495:

```
Met Ile Ser Leu Thr Asp Thr Gln Lys Ile Gly Met Gly Leu Thr Gly
-50 -45 -40

Phe Gly Val Phe Phe Leu Phe Phe Gly Met Ile Leu Phe Phe Asp Lys
-35 -30 -25 -20

Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly Leu Ala Phe
 -15 -10 -5

Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe Phe Gln Lys His Lys
 1 5 10

Met Lys Ala Thr Gly Phe Phe Leu Gly Gly Val Phe Val Val Leu Ile
 15 20 25

Gly Trp Pro Leu Ile Gly Met Ile Phe Glu Ile Tyr Gly Phe Phe Leu
 30 35 40 45

Leu Phe Arg Gly Leu Gly
 50
```

(2) INFORMATION FOR SEQ ID NO: 496:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 53 amino acids

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo Sapiens

(F) TISSUE TYPE: Brain

(ix) FEATURE:

(A) NAME/KEY: sig\_peptide

(B) LOCATION: -33..-1

(C) IDENTIFICATION METHOD: Von Heijne matrix

(D) OTHER INFORMATION: score 3.6  
seq LAVFQMLKSMCAG/QR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 496:

```

Met Ala Ala Ser Gly Ala Pro Arg Ile Leu Val Asp Leu Leu Lys Leu
 -30 -25 -20

Xaa Val Ala Pro Leu Ala Val Phe Gln Met Leu Lys Ser Met Cys Ala
 -15 -10 -5

Gly Gln Arg Leu Ala Ser Glu Pro Gln Asp Pro Ala Ala Val Ser Leu
 1 5 10 15

Pro Thr Ser Ser Gly
 20

```

(2) INFORMATION FOR SEQ ID NO: 497:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 92 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -26..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.6  
seq ARSLLQFLRLVGQ/LK

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 497:

```

Met Ala Ser Val Ser Ser Ala Thr Phe Ser Gly His Gly Ala Arg Ser
-25 -20 -15

Leu Leu Gln Phe Leu Arg Leu Val Gly Gln Leu Lys Arg Val Pro Arg
-10 -5 1 5

Thr Gly Trp Val Tyr Arg Asn Val Gln Arg Pro Glu Ser Val Ser Asp
 10 15 20

His Met Tyr Arg Met Ala Val Met Ala Met Val Ile Lys Asp Asp Arg
 25 30 35

Leu Asn Lys Asp Arg Cys Val Arg Leu Ala Leu Val His Asp Met Ala
 40 45 50

Glu Cys Ile Val Gly Asp Ile Ala Pro Ala Asp Gly
 55 60 65

```

(2) INFORMATION FOR SEQ ID NO: 498:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 24 amino acids  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: PROTEIN
- (vi) ORIGINAL SOURCE:  
 (A) ORGANISM: Homo Sapiens  
 (F) TISSUE TYPE: Brain
- (ix) FEATURE:  
 (A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -16..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 3.6  
 seq LAVLLVLFTLNIL/KS
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 498:

Met Trp Tyr Leu Ala Val Leu Leu Val Leu Phe Thr Leu Asn Ile Leu  
 -15 -10 -5

Lys Ser Leu Tyr Trp Gln Pro Gly  
 1 5

(2) INFORMATION FOR SEQ ID NO: 499:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 58 amino acids  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: PROTEIN
- (vi) ORIGINAL SOURCE:  
 (A) ORGANISM: Homo Sapiens  
 (F) TISSUE TYPE: Brain
- (ix) FEATURE:  
 (A) NAME/KEY: sig\_peptide  
 (B) LOCATION: -42..-1  
 (C) IDENTIFICATION METHOD: Von Heijne matrix  
 (D) OTHER INFORMATION: score 3.5  
 seq INSLLEXSSLRC/LE
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 499:

Met Phe Thr Phe Gly Arg Leu Phe Gln Ile Ile Thr Val Val Thr Cys  
 -40 -35 -30

Leu Gln Phe Ile Gln Asp Cys Cys Ile His Ser Arg Gln Ile Asn Ser  
 -25 -20 -15

Leu Leu Glu Xaa Ser Ser Leu Ser Arg Cys Leu Glu Val Pro Met Tyr  
 -10 -5 1 5

Val Lys Cys Ile Gly Ser Lys Ile Pro Leu  
           10                                  15

(2) INFORMATION FOR SEQ ID NO: 500:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 62 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -51..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 3.5  
seq VGTLCQLDWWIWG/GI

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 500:

Met Ile Gln Asp Arg Asp Arg Cys Ala Gln Ala Ala Ala Val Ala Ala  
   -50                                  -45                                  -40

Val Gly Asn Leu Glu Pro Arg Gly Thr Pro Gly Pro Glu Asp Glu Ala  
  -35                                  -30                                  -25                                  -20

Phe Cys Leu Pro Gly Cys Val Gly Thr Leu Cys Gln Leu Asp Trp Trp  
                   -15                                  -10                                  -5

Ile Trp Gly Gly Ile His Pro His Pro Thr Arg Lys Ala Trp  
                   1                                                          5                                                          10

(2) INFORMATION FOR SEQ ID NO: 501:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 48 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

(ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -31..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 11.3

seq LLLCLLWIGYSQG/TT

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 501:

Met Lys Ile Ile Phe Pro Ile Leu Ser Asn Pro Val Phe Arg Arg Thr  
 -30 -25 -20

Val Lys Leu Leu Leu Cys Leu Leu Trp Ile Gly Tyr Ser Gln Gly Thr  
 -15 -10 -5 1

Thr His Val Leu Arg Phe Gly Gly Ile Phe Glu Tyr Val Glu Ser Gly  
 5 10 15

## (2) INFORMATION FOR SEQ ID NO: 502:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -26..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 6.6  
seq LFWLASGWTPAFA/YS

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 502:

Met Val Ser Arg Met Val Ser Thr Met Leu Ser Gly Leu Leu Phe Trp  
 -25 -20 -15

Leu Ala Ser Gly Trp Thr Pro Ala Phe Ala Tyr Ser Pro Arg Thr Pro  
 -10 -5 1 5

Asp Arg Val Ser Glu Ala Asp Ile Gln Arg Leu Leu His Gly Val Met  
 10 15 20

Glu Gln Leu Gly Ile Ala Arg Pro Arg  
 25 30

## (2) INFORMATION FOR SEQ ID NO: 503:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 amino acids
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN



## (vi) ORIGINAL SOURCE:

- (A) ORGANISM: Homo Sapiens
- (F) TISSUE TYPE: Brain

## (ix) FEATURE:

- (A) NAME/KEY: sig\_peptide
- (B) LOCATION: -24..-1
- (C) IDENTIFICATION METHOD: Von Heijne matrix
- (D) OTHER INFORMATION: score 4.8  
seq ATMVSGSSGLAXA/RL

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 503:

Met Thr Ala Thr Leu Ala Ala Ala Ala Asp Ile Ala Thr Met Val Ser  
                  -20                  -15                  -10

Gly Ser Ser Gly Leu Ala Xaa Ala Arg Leu Leu Ser Arg Xaa Ser Ser  
                  -5                          1                          5

Cys Arg Arg Met Glu Phe Gly Ile Val Pro Thr Gln Pro Arg  
          10                  15                          20



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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>C12N 15/12, C07K 14/47, C12N 15/10, 15/11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>A3</b> | <b>(11) International Publication Number:</b> <b>WO 99/06552</b><br><b>(43) International Publication Date:</b> 11 February 1999 (11.02.99)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>(21) International Application Number:</b> PCT/IB98/01236<br><b>(22) International Filing Date:</b> 31 July 1998 (31.07.98)<br><b>(30) Priority Data:</b><br>08/905,223 1 August 1997 (01.08.97) US<br><b>(71) Applicant (for all designated States except US):</b> GENSET [FR/FR]; 24, rue Royale, F-75008 Paris (FR).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> DUMAS MILNE EDWARDS, Jean-Baptiste [FR/FR]; 8, rue Grégoire de Tours, F-75006 Paris (FR). DUCLERT, Aymeric [FR/FR]; 6 ter, rue Victorine, F-94100 Saint-Maur (FR). LACROIX, Bruno [FR/FR]; 93, route de Vourles, F-69230 Saint-Genis Laval (FR).<br><b>(74) Agent:</b> MARTIN, Jean-Jacques; Cabinet Regimbeau, 26, avenue Kléber, F-75116 Paris (FR). |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><b>Published</b><br><i>With international search report.</i><br><b>(88) Date of publication of the international search report:</b> 22 April 1999 (22.04.99) |
| <b>(54) Title:</b> 5' ESTs FOR SECRETED PROTEINS EXPRESSED IN BRAIN<br><b>(57) Abstract</b><br><p>The sequences of 5' ESTs derived from mRNAs encoding secreted proteins are disclosed. The 5' ESTs may be to obtain cDNAs and genomic DNAs corresponding to the 5' ESTs. The 5' ESTs may also be used in diagnostic, forensic, gene therapy, and chromosome mapping procedures. Upstream regulatory sequences may also be obtained using the 5' ESTs. The 5' ESTs may also be used to design expression vectors and secretion vectors.</p>                                                                                                                                                                                                                        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 98/01236

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/12 C07K14/47 C12N15/10 C12N15/11

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                        | Relevant to claim No. |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A          | ADAMS M D ET AL: "3,400 NEW EXPRESSED SEQUENCE TAGS IDENTIFY DIVERSITY OF TRANSCRIPTS IN HUMAN BRAIN" NATURE GENETICS, vol. 4, no. 3, July 1993, pages 256-267, XP000645060<br>see the whole document<br>---                                              |                       |
| A          | ADAMS M D ET AL: "RAPID CDNA SEQUENCING (EXPRESSED SEQUENCE TAGS) FROM A DIRECTIONALLY CLONED HUMAN INFANT BRAIN CDNA LIBRARY" NATURE GENETICS, vol. 4, no. 4, August 1993, pages 373-380, STANDARD, XP002064427<br>see the whole document<br>---<br>-/-- |                       |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

10 November 1998

Date of mailing of the international search report

17.02.99

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Smalt, R

## INTERNATIONAL SEARCH REPORT

International Application No

PC, IB 98/01236

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                          | Relevant to claim No. |
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| A        | EP 0 279 582 A (BAYLOR COLLEGE MEDICINE)<br>24 August 1988<br>see the whole document<br>---                                                                                                                                                                                                                                                 | 12,13                 |
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## INTERNATIONAL SEARCH REPORT

International Application No

PCT, IB 98/01236

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                              | Relevant to claim No. |
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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 98/01236

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please see additional sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-37 all partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.



FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: Invention 1: claims 1-37 all partially

Nucleic acid comprising the sequence as in Seq.ID:38, complementary sequence, fragments, hybridizing sequences. Polypeptide comprising a signal peptide encoded by said nucleotide sequence. Vector encoding a fusion protein comprising said signal peptide. A method of directing the extracellular secretion of a polypeptide by means of said vector. Method of importing a polypeptide into a cell by means of said signal peptide. A method for making a cDNA encoding a secretory protein, partially encoded by said nucleotide sequence, corresponding cDNA. Polypeptide encoded by said nucleotide sequence, comprising a sequence as in Seq.ID:271, method of making said polypeptide. Method of obtaining a promoter located upstream of said nucleotide sequence, promoter thereof.

2. Claims: Invention 2-233: claims 1-37 all partially

Inventions 2-233: Idem as subject 1 but limited to each of the DNA sequences as in Seq.ID:39-271, and corresponding polypeptides, where invention 2 is limited to Seq.ID:39 and 272, invention 3 is limited to Seq.ID:40 and 273,....., invention 233 is limited to Seq.ID:270 and 503).

For the sake of conciseness, the first subject matter is explicitly defined, the other subject matters are defined by analogy thereto.

# INTERNATIONAL SEARCH REPORT

II. Information on patent family members

International Application No

PCT/IB 98/01236

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>C12N 15/12, C07K 14/47, C12N 15/10, 15/11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>A3</b> | <b>(11) International Publication Number:</b> <b>WO 99/06552</b><br><b>(43) International Publication Date:</b> 11 February 1999 (11.02.99)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>(21) International Application Number:</b> PCT/IB98/01236<br><b>(22) International Filing Date:</b> 31 July 1998 (31.07.98)<br><b>(30) Priority Data:</b><br>08/905,223 1 August 1997 (01.08.97) US<br><b>(71) Applicant (for all designated States except US):</b> GENSET [FR/FR]; 24, rue Royale, F-75008 Paris (FR).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> DUMAS MILNE EDWARDS, Jean-Baptiste [FR/FR]; 8, rue Grégoire de Tours, F-75006 Paris (FR). DUCLERT, Aymeric [FR/FR]; 6 ter, rue Victorine, F-94100 Saint-Maur (FR). LACROIX, Bruno [FR/FR]; 93, route de Vourles, F-69230 Saint-Genis Laval (FR).<br><b>(74) Agent:</b> MARTIN, Jean-Jacques; Cabinet Regimbeau, 26, avenue Kléber, F-75116 Paris (FR). |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>With international search report.</i><br><i>With amended claims.</i><br><b>(88) Date of publication of the international search report:</b> 22 April 1999 (22.04.99)<br><b>Date of publication of the amended claims:</b> 3 June 1999 (03.06.99) |
| <b>(54) Title:</b> 5' ESTs FOR SECRETED PROTEINS EXPRESSED IN BRAIN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>(57) Abstract</b><br><br>The sequences of 5' ESTs derived from mRNAs encoding secreted proteins are disclosed. The 5' ESTs may be to obtain cDNAs and genomic DNAs corresponding to the 5' ESTs. The 5' ESTs may also be used in diagnostic, forensic, gene therapy, and chromosome mapping procedures. Upstream regulatory sequences may also be obtained using the 5' ESTs. The 5' ESTs may also be used to design expression vectors and secretion vectors.                                                                                                                                                                                                                                                                                                  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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## AMENDED CLAIMS

[received by the International Bureau on 19 April 1999 (19.04.99);  
original claims 1-37 replaced by new claims 1-37 (5 pages)]

1. A purified or isolated nucleic acid comprising the sequence of one of SEQ ID NOs: 38-270 or comprising a sequence complementary thereto.
- 5 2. The nucleic acid of Claim 1, wherein said nucleic acid is recombinant.
3. A purified or isolated nucleic acid comprising at least 10 consecutive bases of the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary thereto, with the exception of a purified or isolated nucleic acid consisting of consecutive bases which are situated entirely in the sequences identified as Feature in  
10 the corresponding SEQ ID under key:other.
4. A purified or isolated nucleic acid comprising at least 15 consecutive bases of one of the sequences of SEQ ID NOs: 38-270 or one of the sequences complementary thereto, with the exception of a purified or isolated nucleic acid consisting of consecutive bases which are situated entirely in the sequences identified as Feature in  
15 the corresponding SEQ ID under key:other.
5. The nucleic acid of Claim 4, wherein said nucleic acid is recombinant.
6. A purified or isolated nucleic acid of at least 15 bases capable of hybridizing under stringent conditions to the sequence of one of SEQ ID NOs: 38-270 or one of the sequences complementary to the sequences of SEQ ID NOs: 38-270, with the  
20 exception of a purified or isolated nucleic acid consisting of consecutive bases which are situated entirely in the sequences identified as Feature in the corresponding SEQ ID under key:other.
7. The nucleic acid of Claim 6, wherein said nucleic acid is recombinant.
8. A purified or isolated nucleic acid encoding a human gene product, said  
25 human gene product having a sequence partially encoded by one of the sequences of SEQ ID NO: 38-270, with the exception of a purified or isolated nucleic acid consisting of consecutive bases which are situated entirely in the sequences identified as Feature in the corresponding SEQ ID under key:other.
9. A purified or isolated nucleic acid having the sequence of one of SEQ ID  
30 NOs: 38-270 or having a sequence complementary thereto.
10. A purified or isolated nucleic acid comprising the nucleotides of one of SEQ ID NOs: 38-270 which encode a signal peptide.

11. A purified or isolated polypeptides comprising a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270.

12. A vector encoding a fusion protein comprising a polypeptide and a signal peptide, said vector comprising a first nucleic acid encoding a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270 operably linked to a second nucleic acid encoding a polypeptide.

13. A method of directing the extracellular secretion of a polypeptide or the insertion of a polypeptide into the membrane comprising the steps of:

obtaining a vector according to Claim 12; and

introducing said vector into a host cell such that said fusion protein is secreted into the extracellular environment of said host cell or inserted into the membrane of said host cell.

14. A method of importing a polypeptide into a cell comprising contacting said cell with a fusion protein comprising a signal peptide encoded by one of the sequences of SEQ ID NOs: 38-270 operably linked to said polypeptide.

15. A method of making a cDNA encoding a human secretory protein that is partially encoded by one of SEQ ID NOs 38-270, comprising the steps of:

obtaining a cDNA comprising one of the sequences of SEQ ID NOs: 38-270;

contacting said cDNA with a detectable probe comprising at least 15 consecutive nucleotides of said sequence of SEQ ID NO: 38-270 or a sequence complementary thereto under conditions which permit said probe to hybridize to said cDNA;

identifying a cDNA which hybridizes to said detectable probe; and

isolating said cDNA which hybridizes to said probe.

16. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 15.

17. The cDNA of Claim 16 wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

18. A method of making a cDNA comprising one of the sequences of SEQ ID NOs: 38-270, comprising the steps of:

contacting a collection of mRNA molecules from human cells with a first primer capable of hybridizing to the polyA tail of said mRNA;

hybridizing said first primer to said polyA tail;

reverse transcribing said mRNA to make a first cDNA strand;

5 making a second cDNA strand complementary to said first cDNA strand using at least one primer comprising at least 15 nucleotides of one of the sequences of SEQ ID NOs 38-270; and

isolating the resulting cDNA comprising said first cDNA strand and said second cDNA strand.

10 19. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270 or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 18.

20. The cDNA of Claim 19 wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

21. The method of Claim 18, wherein the second cDNA strand is made by:  
contacting said first cDNA strand with a first pair of primers, said first pair of primers comprising a second primer comprising at least 15 consecutive nucleotides of one of the sequences of SEQ ID NOs 38-270 and a third primer having a sequence therein  
20 which is included within the sequence of said first primer;

performing a first polymerase chain reaction with said first pair of nested primers to generate a first PCR product;

contacting said first PCR product with a second pair of primers, said second pair of primers comprising a fourth primer, said fourth primer comprising at least 15 consecutive  
25 nucleotides of said sequence of one of SEQ ID NOs 38-270, and a fifth primer, said fourth and fifth primers being capable of hybridizing to sequences within said first PCR product; and

performing a second polymerase chain reaction, thereby generating a second PCR product.

30 22. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein encoded by one of SEQ ID NOs 38-270,

or a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 21.

23. The cDNA of Claim 22 wherein said cDNA comprises the full protein coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

5 24. The method of Claim 18 wherein the second cDNA strand is made by:  
contacting said first cDNA strand with a second primer comprising at least 15 consecutive nucleotides of the sequences of SEQ ID NOs: 38-270;  
hybridizing said second primer to said first strand cDNA; and  
extending said hybridized second primer to generate said second cDNA strand.

10 25. An isolated or purified cDNA encoding a human secretory protein, said human secretory protein comprising the protein partially encoded by one of SEQ ID NOs 38-270 or comprising a fragment thereof of at least 10 amino acids, said cDNA being obtainable by the method of Claim 24.

26. The cDNA of Claim 25, wherein said cDNA comprises the full protein  
15 coding sequence partially included in one of the sequences of SEQ ID NOs: 38-270.

27. A method of making a protein comprising one of the sequences of SEQ ID NO: 271-503, comprising the steps of:

obtaining a cDNA encoding the full protein sequence partially included in one of the sequences of sequence of SEQ ID NO: 38-270;

20 inserting said cDNA in an expression vector such that said cDNA is operably linked to a promoter;

introducing said expression vector into a host cell whereby said host cell produces the protein encoded by said cDNA; and

isolating said protein.

25 28. An isolated protein obtainable by the method of Claim 27.

29. A method of obtaining a promoter DNA comprising the steps of:

obtaining DNAs located upstream of the nucleic acids of SEQ ID NO: 38-270 or the sequences complementary thereto;

30 screening said upstream DNAs to identify a promoter capable of directing transcription initiation; and

isolating said DNA comprising said identified promoter.



30. The method of Claim 29, wherein said obtaining step comprises chromosome walking from said nucleic acids of SEQ ID NO: 38-270 or sequences complementary thereto.

31. The method of Claim 30, wherein said screening step comprises inserting  
5 said upstream sequences into a promoter reporter vector.

32. The method of Claim 30, wherein said screening step comprises identifying motifs in said upstream DNAs which are transcription factor binding sites or transcription start sites.

33. An isolated promoter obtainable by the method of Claim 32.

10 34. An isolated or purified protein comprising one of the sequences of SEQ ID NO: 271-503.

35. In an array of discrete ESTs or fragments thereof of at least 15 nucleotides in length, the improvement comprising inclusion in said array of at least one of the sequences of SEQ ID NOs: 38-270, or one of the sequences complementary to the  
15 sequences of SEQ ID NOs: 38-270, or a fragment thereof of at least 15 consecutive nucleotides.

36. The array of Claim 35 including therein at least two of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of at least 15 consecutive nucleotides.

20 37. The array of Claim 35 including therein at least five of the sequences of SEQ ID NOs: 38-270, the sequences complementary to the sequences of SEQ ID NOs: 38-270, or fragments thereof of at least 15 consecutive nucleotides.

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